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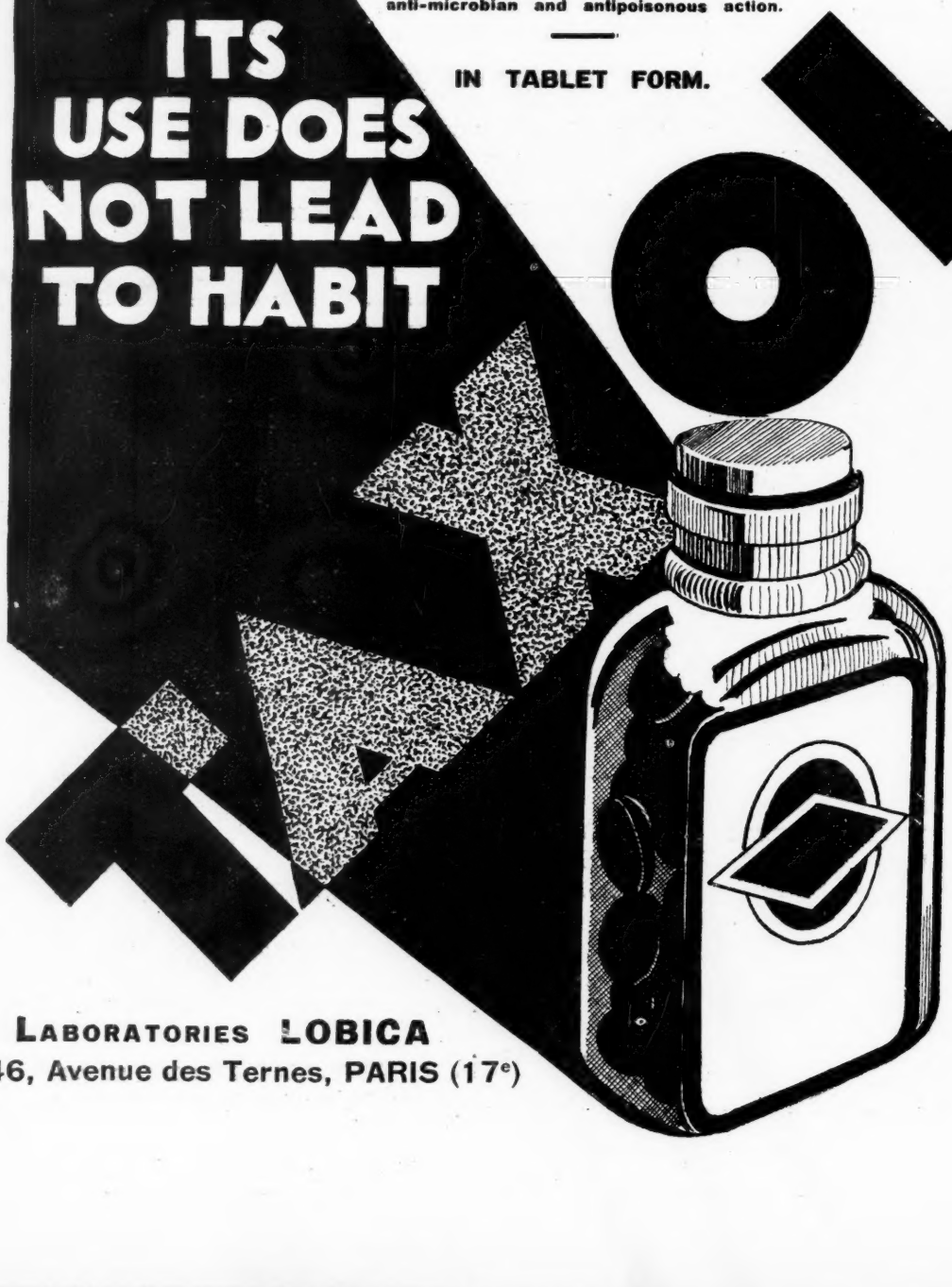

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THE TECHNIQUE OF RADIUM THERAPY TO-DAY.*

BY

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RADIUM therapy has been dealt with largely by the lay press, which has done much good in educating people in the subject, but, as is so often the case, a false impression has been given by the application of the journalistic touch to a most important subject. Two erroneous views are, I think, widely held by the laity in consequence: one is that radium will cure all cases of carcinoma, and the other is that for want of radium many unfortunate people are dying daily throughout the country.

The use of radium has now reached a position where we know that in the treatment of carcinoma it is on a par with the knife, and in certain cases surpasses the use of that instrument; but even the knife has never been able to deal with all cases of carcinoma. In the second place, there is at the moment more radium in this country than there are people trained and capable of using it. On the Continent radium has been studied for many years, while in this country scientific methods have been comparatively lately introduced.

Radium gives off three forms of rays: alpha rays, which are of no importance; beta rays, which are disadvantageous for medicinal purposes, and must be screened off by platinum, lead, or other impermeable metals, since they destroy normal as well as abnormal tissues; gamma rays, which produce therapeutic effects, but must be as pure as possible. The gamma rays act more powerfully on immature tissues than on fully developed and highly differentiated ones. Cancer cells, being immature and hardly differentiated—in many cases consisting of masses of almost wholely undifferentiated cells in stroma—are very much more sensitive than the normal tissues. They can therefore be killed without permanent injury being inflicted upon the normal tissues. We also know that cells in the course of rapid division, such as cancer cells, are more sensitive than cells which divide and multiply at longer intervals.

METHODS OF APPLYING RADIUM.

General radium therapy is the introduction into the system of radio-active substances which will circulate throughout the body and act upon the primary growth, the glands, and the metastases. It is the ideal method, but unfortunately at present it is beyond our powers, since the introduction of such substances would injure vital organs and the individual would be killed before the carcinoma could be destroyed. The future may reveal to us a means of treating carcinoma by this method, and the introduction of a vaccine, a serum, or a metal such as lead, or selenium may open up to us a way of approaching our ideal. Meanwhile we are limited to the introduction of radium foci locally. Radium acts in accordance with Newton's law—that is, its action is the inverse of the square of the distance from the substance on which it operates; these foci must therefore be brought into close contact with the carcinoma, and in order to do this it is convenient to have many foci so that the dose may be evenly distributed over a large area.

Radium must not be confounded with its emanation—radon—which is collected in capillary glass tubes and which acts like radium, though only for a very limited time. In twenty-four hours it loses 18 per cent. of its power; in three days 50 per cent.; in eight days 80 per cent.; while in fourteen days only 8 per cent. remains. This limits its use to centres where a radon plant is available, otherwise exact dosage is difficult or impossible to calculate, since it is not always known when it was prepared and how much has been dissipated.

Seeds are tiny glass tubes filled with radon, which may be enclosed in a platinum sheath to shield the tissues; they are about 6 mm. long and less than 1.5 mm. thick. Various instruments have been invented for their introduction. They are inserted into the tissues and left there, the radon dissipating in the usual time; if they contain radium they must be attached to a silk thread and recovered.

Needles contain radium in metal capillary tubes called "cells," which are enclosed in platinum tubes, sharpened at one end and with an eyelet at the other. They are of different lengths, and contain one, two, or more cells, each containing 0.5 to 1 mg. of radium. Needles range in length from 20 mm. to 60 or 80 mm., and differ in strength according to the number of cells they contain. The needle is threaded with a flexible substance or thin wire, and is then thrust into the tissues; after a certain time it is recovered by traction on the thread. The thickness of the wall of platinum in each needle varies from a minimum of 0.5 to 0.8 mm., or even 1 mm. for longer needles.

Tubes are composed of platinum, and contain larger quantities of radium ranging from 5 to 100 mm. or more. As a rule they are of no great length, 20 to 40 mm., while their walls may be 2 mm. in thickness. As a rule they are placed in special containers of silver, which fit the situation in which it is desired to place them—the uterus, rectum, or oesophagus.

Bombs are thick leaden cavities, sometimes six inches in thickness, in which large quantities of radium (perhaps 4 grams), suitably screened, are placed; a window can be opened, and the rays allowed to act upon the area required for a very short time. They have been tried in Brussels and Paris, and now there is one at the Westminster Hospital. Though they have been in use for some years abroad it is significant, I think, that, so far, no results have been published.

The dose of radium should be distributed as equally as possible over the malignant cells so as to destroy them, while avoiding injury to the surrounding tissues. This is not always easy to effect. In a large tumour the cells in the centre cannot escape, and can probably do nothing but degenerate; they are therefore not to be feared, for the actively growing and infiltrating cells at the margin are the agents by which spread and metastases are brought about.

In a flat ulcer needles can be introduced into the tissues underneath, and can be placed parallel; but in deeply situated growths infiltrating the tissues, such as the tongue, the needles have to be arranged parallel with the sides, so that they gradually converge from the surface.

1. *The Internal Method of Application, or Intra-cavitation.*—This is the introduction of radium into a natural cavity such as the vagina, uterus, rectum, mouth, or oesophagus. The radium is kept in place a certain time to allow it to take effect, and special apparatus may be required; for instance, a dental plate may have to be used to keep the radium in contact with a growth of the palate. Considerable experience is needed to gauge the dose required.

Internal radium therapy is limited in action by many factors, such as the depth from the surface in the oesophagus and rectum, by the thinness of the walls in the oesophagus, or the narrowness of the tube in the urethra. For instance, in the urethra or oesophagus it is almost impossible to destroy a growth on one side and not injure the wall of the canal on the other; this has been a frequent cause of death in cases of disease of the oesophagus.

Perhaps the best results have been obtained in cases of carcinoma of the cervix. The uterus is an organ possessing great radio-resistance, and will stand ten times the dose that the skin will tolerate, so that there is a large margin to work on. The figures of Paris, Stockholm, and Brussels do not differ materially, so I will take those of Paris.

The cases are divided into three classes: degree 1, operable cases in which the carcinoma is apparently early and local; degree 2, borderline cases where the disease is in a more advanced state on the cervix, and the glands

*A British Medical Association Lecture (abridged) delivered before the South Wales and Monmouthshire Branch of the British Medical Association on May 31st.

are possibly affected; degrees 3 and 4, inoperable cases, where the disease is still more advanced, and the adnexa of the uterus are infiltrated. In degree 4 other metastases are present, and the case is hopeless.

In the Paris report there were 61 available cases; the number freed from symptoms was 37, or 60 per cent. of clinical provisional cures. The percentage of five-year cures increased from 20 in 1919 to 81 in 1923. In degree 2 there were 176 available cases, of which 66 were freed from symptoms, or 37 per cent. of clinical provisional cures. The percentage of five-year cures increased from 33 in 1919 to 43 in 1923. In degrees 3 and 4 there were 373 available cases; 81 were freed from symptoms, or 28 per cent. of clinical provisional cures. The percentage of five-year cures increased from 3 in 1919 to 31 in 1923.

These figures are as good as those of the best surgical clinics, and have improved remarkably during the last few years. They probably will improve still more, but all cases will not be cured. There is a great difference in the percentage of cures among those seen and diagnosed and treated early and those seen at a later date. Although squamous-celled carcinoma of the cervix gives such good results, adenocarcinoma of the body of the uterus is highly resistant and gives very bad results; indeed, its treatment by radium has practically been abandoned.

2. *Interstitial Method.*—This consists in the introduction of needles into the tissues. In order that the dose may be evenly distributed a large number of foci or needles are required. Interstitial radium therapy is applied to a host of tumours throughout the body—to either carcinoma or sarcoma of the tongue, the breast, the prostate, or to superficial ulcers and metastases. Carcinoma of the skin gives perhaps the best results; about 90 per cent. can be cured either by this method alone or in some combination.

The tongue yields very striking results, and again I will cite the Paris figures. Of 344 available cases complete cure ensued in 82 (23 per cent.); cure of the tongue, with death from glandular involvement, in 69 (20 per cent.); and failure in 193 (56 per cent.). This far surpasses any results produced by surgery so far.

Interstitial radium therapy has been developed by what is termed "radium surgery" or "surgery of access"; in this the tumour is exposed so as to allow the needles to be inserted. This is best exemplified in carcinoma of the rectum where a modified Kraske operation is performed; the bowel containing the growth is exposed, the needles are inserted so as to form a barrage round the tumour, and the wound is temporarily closed. At the end of a week the wound is reopened, the needles are removed, and the wound is then permanently closed. Very accurate dosage is needed to destroy the tumour, and the method so far is inferior to the knife. Investigation is rapidly travelling along these lines; carcinomas of the larynx and of the prostate are being treated thus, the first with unexpectedly good results.

3. *Surface Irradiation.*—If radium is applied close to the skin an erythema dose is delivered over a very small area, and a burn is rapidly produced. Columbia paste or wax, consisting of 100 grams each of beeswax and paraffin, with 200 grams of fine sawdust, is used, either 1.5 or 2 cm. in thickness. This allows the rays to spread out sufficiently so that an erythema dose will take some time, and the radium can act longer on the subjacent tumour. The wax is warmed in hot water of about 117° F. until it is as soft as a piece of cloth; it is then moulded to the part, a cold cloth being applied to harden it, and the hardening completed by plunging the mould into cold water. The needles are warmed and applied to the outer side; they will stick to the mould or can be fastened to it by plaster, and are covered with a thin layer of lead to protect other parts of the body. The mould is kept in place for fourteen to twenty-one days, until an erythema dose has been administered. Large areas can be irradiated in this manner with very excellent results, especially in superficial metastases.

4. *Distance Radiation.*—This consists of a similar apparatus to the last, but large doses are placed upon blocks of wood at a distance from the skin. It is becoming less and less used. Bombs are a development of this method.

DOSAGE.

The dose of radium given is usually stated in milligram hours; the number of milligrams applied is multiplied by the number of hours of exposure given. Thus 1,000 mg. of radium applied for one hour will equal 1,000 mg. hours, but the same dose can be given by 1 mg. of radium applied for 1,000 hours, or 500 mg. for two hours, or 100 mg. for ten hours, but the clinical results will not be the same.

In early days large doses were given for short periods, but the work of Professor Regaud of Paris showed that large doses with short exposures did not sterilize rabbits, while smaller doses for longer periods did so. This is probably connected with the division of cells, for more mitoses will take place over a long period than over a short one. On the other hand, we know that exposure to radium stops mitosis at once, so there must be some other factor not yet understood. This has revolutionized our dosage, and we are using smaller doses over longer periods. Such a method of dosage is only rough-and-ready, for while needles inserted into the tissues give off energy all round to the tissues, when radium is applied to the skin, the skin will receive less than half the energy given off. In Brussels an attempt is being made to measure accurately the dose received by the tissues, and it seems probable that our methods of dosage will be altered very considerably in the near future.

All degrees of burn can be produced by radium. The first degree is called the erythema dose, and it is tried to bring about a severe first degree of burn where the skin peels afterwards. More than this destroys the tissues, and such burns take long to heal and are painful; they should therefore be avoided. Radium is believed to act best in a virgin soil, and a second dose some months later does not seem to produce as good results as the preceding one. If a second dose follows after only a short interval the same good results are seen. Gynaecologists have developed this idea; they give three doses at intervals of a few days, with excellent results, in carcinoma of the breast.

RESULTS OF RADIUM THERAPY.

The results of radium are well seen on superficial growths on the skin and mucous membranes; the surface cleans up, and becomes smooth and healthy-looking; the rolled-over edges of an ulcer disappear, the mucous membrane becomes white like leukoplakia, and within a week a marked improvement is seen. These changes remain for a period of five to eight weeks, during which time healing advances, and in about two to three months a carcinoma of the tongue may quite disappear. A superficial rodent ulcer will heal in the same time; if, however, it is of long standing and the bone is affected it may take longer to clear up completely. Tumours of the breast will disappear if not too large, and superficial recurrences will certainly clear up, while carcinomatous ulcers can be made to heal, but others may form, or the patient may succumb to internal metastases which have previously started to grow.

One remote result must be remembered. After exposure to radium the tissues are altered, and some quite slight injury may cause their death and necrosis. What this change is we do not know, but we see necrosis of the jaw develop from wearing false teeth, death of areas of skin appear after too hot a bath, and other results ensuing months after the treatment. Healing is very slow, and subsequent operations have to be very carefully considered. This change is not seen earlier than two months, and sometimes more.

THE LIMITS OF RADIUM TREATMENT.

Many of the present limits of radium treatment will probably be overcome in the future; accessibility of the growth is a fundamental necessity. For this reason carcinoma of the oesophagus defies us, though surgery of access enables us to expose the rectum. This may soon render it possible to deal with intestinal carcinoma, but at the moment we can do little. Gastric cancers have been brought to the surface, stitched under the skin, and then treated, but prolonged relief can scarcely be looked for in internal carcinomata which are only suspected from symptoms and which are therefore diagnosed late. Cancer

of the prostate is in the same unenviable position, being diagnosed late and being inaccessible.

Sometimes a carcinoma in its primary form readily reacts to radium, but the glands when infected may not react at all; block dissection of the glands still seems the best treatment in carcinoma of the tongue. Some carcinomata, such as that of the body of the uterus, are resistant and not apparently affected by radium. Accuracy of dose in all cases is essential, and that is the great difficulty at the present moment.

Cure is a term we hardly like to use in connexion with carcinoma, for though a round-celled sarcoma may disappear in a few weeks, the patient will probably die from secondary infection in the lungs, just as after an amputation. Delay, however, is less likely with radium, for there should be less shrinking from radium treatment than from amputation. If it can be impressed upon the public that early diagnosis will remove the disease without a mutilating operation a bigger step forward will result than has ever been made in the history of this disease.

THE FUTURE OF RADIUM TREATMENT.

It must be clearly understood that the treatment of carcinoma by radium requires the knowledge and the experience of a specialist. Haphazard administration must involve disappointment and bring the method into contempt. It is a regrettable thing to have to say that radium treatment in this country has survived in spite of, rather than because of, institutions which have loaned radium to people totally ignorant of the subject; the indiscriminate distribution of radon about the country must cease, and radium centres are now being established to supply the needs of different areas. France has already formed a large number of such areas; an expert visits the centres and even subcentres at regular intervals.

Post-graduate teaching is now available at the Mount Vernon Hospital, which, it is hoped, will become the cancer centre of the Empire, and attract research students to it from all parts. This institution has linked itself with the Radium Institute, and a school will be opened in the autumn for the instruction of post-graduates in radium treatment. Very close co-operation is needed between the different branches of the profession, including surgeons, laboratory workers, biologists, and physicists; this has been brought to a high state of efficiency in Paris, Brussels, and Stockholm, and the results there are correspondingly good.

No carcinoma investigation is worth anything unless a really good follow-up department is in use. A patient may be relieved for a time, and a secondary mass appear, which can be dealt with efficiently if seen and recognized at once; patients must therefore be examined at all centres periodically. It is hoped that special travelling facilities by rail may be arranged so that they can come for examination at the London centre of the hospital at a reduced fee. In Sweden all carcinoma patients can travel to the centres free of charge. Results cannot be expected until five years have elapsed, so patience is needed, but it is hoped that organization will soon place London in the forefront of the battle against malignant disease.

THE TREATMENT OF PRURITUS ANI AND ANAL FISSURE.

BY

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RECENT communications to the *British Medical Journal* by J. P. Scatchard (June 28th, p. 1203) and by A. S. Morley (July 12th, p. 79) indicate that the treatment of anal pruritus and fissure by the method which I described a year ago[1] is proving successful. The method recommended was the subcutaneous injection of a solution composed of anaesthesin 3 per cent., benzyl alcohol 5 per cent., and ether 10 per cent., in sterilized oil, and termed "A.B.A." Since the publication of that paper I have had a large experience of this method, and the present time seems favourable for the elaboration of certain points in the indications and technique which I have found of value.

Pruritus Ani.

In pruritus ani it is only the intractable cases which need treatment by injection of A.B.A.; the majority of cases will clear up by simple attention to cleanliness, by the use of lotions and powders rather than ointments, and by careful search for and treatment of any local cause of the pruritus. The attention which has recently been drawn by Colonel W. P. MacArthur (*Journal*, June 28th, p. 1195) to the importance of threadworms in this connexion is very opportune. In cases of pruritus ani of long standing in which no local cause can be found, I believe the injection of A.B.A. to be the method of choice, and superior in every way to under-cutting operations. With increasing confidence in the use of this solution, I have found that 10 c.cm. may safely be employed at the first treatment. This amount is injected in relation to the posterior half of the perianal region through four punctures, 2½ c.cm. being injected at each point indicated in the accompanying diagram (Fig. 1). The reason for selecting this part for the first injection is an anatomical one. The sensory nerve supply to the anus and anal canal is supplied by the inferior haemorrhoidal nerve, and by the perineal branch of the fourth sacral nerve; these nerves approach from the posterior and postero-lateral aspects of the anus. An injection of 10 c.cm. of A.B.A. as described above gives the pruritus, so to speak, an immediate knock-out blow, and very little more has to be done. A week later 5 c.cm. of A.B.A. are injected by two punctures into the right anterior anal quadrant (Fig. 2), and the left anterior anal quadrant is dealt with similarly during the following week. Perianal dermatitis is treated on the accepted lines: cracks and fissures are swabbed with silver nitrate solution, iodine, or friar's balsam, and the patient applies a simple lead or magnesia lotion. Relief of irritation is experienced within a few hours after the first injection. A feeling of numbness develops and lasts for many weeks, so that ample time is afforded for treatment of the dermatitis, and for the patient to forget his anal troubles.

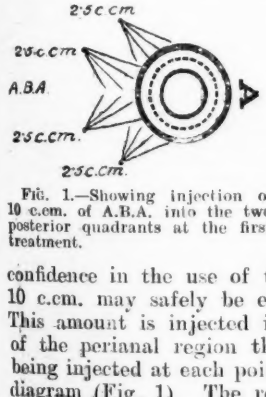

FIG. 1.—Showing injection of 10 c.cm. of A.B.A. into the two posterior quadrants at the first treatment.

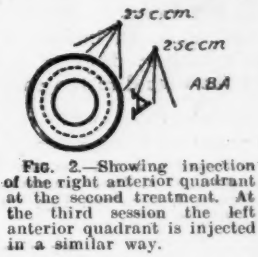

FIG. 2.—Showing injection of the right anterior quadrant at the second treatment. At the third session the left anterior quadrant is injected in a similar way.

In the average case, therefore, I find that the injection of three doses—10, 5, and 5 c.cm.—of A.B.A. is sufficient for cure. I have given this large dose many times and have had no complications. The solution must be injected deeply in a fan-like manner as described in my original paper, with strict attention to asepsis, and the injection should be made so deeply that no superficial swelling is noticeable afterwards. I might add that A.B.A. is now dispensed by Messrs. Allen and Hanburys in 5 c.cm. ampoules, which is a more effective amount for use than the original 2 c.cm. ampoules.

As an alternative to A.B.A., I have for some months been trying a solution of percaine in oil; the remarkable anaesthetic properties of this substance in regard to duration of anaesthesia are well known. The new solution has been prepared for me by Allen and Hanburys, and is composed as follows: percaine 0.5 per cent., benzyl alcohol 10 per cent., phenol 1 per cent., in 5 c.cm. of sterilized oil. The phenol was added in order to assist the solution of percaine, alkalis having to be avoided, and also on account of its antiseptic effect. Goldbacher[2] has shown that 5 per cent. phenol in oil can safely be injected subcutaneously in pruritus cases. This new solution produces a more rapid effect than A.B.A., and the duration of the

hypo-aesthesia in cases of pruritus is very satisfactory. The percaine content in 10 c.cm. of this solution (0.05 gram) is well within the limits of safety for adults, and I have only once had any general reaction: this was in the case of a man with pruritus, who, on a hot summer's day recently, became slightly pale and faint after the injection, but quickly recovered.

Anal Fissures.

In the case of anal fissures, A.B.A., or the percaine in oil solution, can be trusted to produce sphincteric relaxation, 5 c.cm. being the usual amount which I now inject into the sphincter. A superficial fissure will heal readily: a fissure with a sentinel tag will heal when the tag has been snipped off, but it is not possible to secure healing of a deeply undermined fissure without a drainage operation. A fissure of this last type is really a submucous pocket or a blind internal fistula, and must be drained back by a surgical operation. Injection of A.B.A. in such a case may relieve the symptoms, and will permit a thorough examination to be made, but it will not cure the condition.

The operation for drainage of a deep undermined fissure is best performed under a low spinal anaesthesia by the technique described by my colleague at St. Mark's Hospital, Mr. J. K. Hasler.[3] With the patient in a sitting position 0.4 or 0.5 c.cm. of stovaine billon in saline solution is injected intradurally through any convenient lumbar interspace. The patient remains sitting for a few minutes before being placed in the lithotomy position; he is then found to have a saddle-shaped area of anaesthesia in the perineum corresponding to the distribution to the skin of the fifth, fourth, third, and sometimes the second sacral nerves. The operation is performed as follows. The sphincter is gradually stretched until five or six fingers can be admitted readily. The undermined pocket is then drained posteriorly, and the sentinel tag is excised. Instead of the usual "lozenge" or diamond-shaped incision which has hitherto been recommended, I now make an incision with square ends, which has great advantages; it gives better drainage, and renders healing of the wound in the anal canal quite inevitable (Fig. 3).

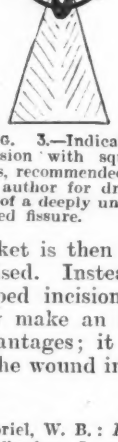

FIG. 3.—Indicating incision with square ends, recommended by the author for drainage of a deeply undermined fissure.

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ANAESTHETIC EXPLOSIONS.

BY

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Two cases of alleged explosion of chloroform vapour have recently come to my notice. Chloroform is not inflammable; in fact, it cannot be made to burn by itself. A mixture of 2 parts of chloroform with 1 part of ether, or a mixture of chloroform, alcohol, and ether will, however, burn, giving off strong acrid fumes containing chlorine.

I have tried to discover whether in favourable circumstances the vapour of chloroform can be caused to ignite, for in one case there was an explosion when an electric cautery (Cameron's "cauterodyne") was being used in the mouth. I first passed a stream of oxygen through chloroform in a Junker's bottle, and failed to ignite the vapour issuing from it. I thought that the extremely high temperature of the electric spark might in some way render the oxygenated vapour combustible, so I prepared an experiment in which chloroform was boiled in a tin canister with a stream of oxygen bubbling through. The flame of an oxy-acetylene blowpipe was applied to the vapour, and, subsequently, a fragment of steel was kindled in the vapour with the aid of a jet of oxygen. This procedure resulted in such brilliant scintillations being given off that the heat must have been well over 4,000° C.—the temperature of the flame—and at least as high as the sparks from the electric cautery.

In both cases the chloroform vapour decomposed at once into billows of pungent and acrid black fumes; these did not catch fire, and the decomposition did not continue when the flame was removed, indicating that it was not the chloroform vapour that became ignited in the two cases. Since there is no doubt at all about the facts in the two cases of explosions at operations, I can only say that the occurrences must have been caused either by the inadvertent addition of ether, or by the burning of combustible gases arising from hot and charred tissues in such a confined space as the mouth. This is a probable explanation in the second case, and accounts, of course, for the flickering always seen when using such cauteries.

At least a hundred explosions probably occur every year with ether in this country, causing trifling or severe burns of the eyebrows, lips, and pharynx, but not extending into the lungs, because the mixture is too weak to burn there. The explosions are caused by the ignition of the richer mixture introduced into the mouth by a tube or occurring in the immediate proximity of the soaked coverings of the mask. I feel sure that two or three minutes after stopping the administration of ether the expired air contains too little of the gas to ignite.

For several years I have continually used the ether bomb apparatus, often within two or six feet of an open fire, and frequently much nearer a cautery, without any ignition taking place. The quantity of ether is too small, or too quickly diluted, although, where there is an electric radiator in the room, the pungent fumes of slow combustion can always be smelt above it within a few minutes of the vaporization of even a small quantity. An explosion was reported to have occurred from the introduction of the apparently sound lamp of an oesophagoscope into the pharynx; it must be concluded that the connexion in the lamp socket was sufficiently imperfect to cause minute sparkings, because I have found that a needle introduced into an air-ether mixture has to be at least red-hot to ignite it.

The ordinary optimum mixture of petrol vapour and air in a motor car engine is 1 in 13; in the case of alcohol it is, I believe, 1 in 14, and in that of ether the proportion is probably the same. A weaker mixture would, however, ignite, and so would a stronger, but the limits (without compression) are not wide and the ignition point is considerably raised. When a combustible gaseous mixture is raised to a certain temperature it "fires"; this is its "ignition point." The term "flash point" refers to a liquid, being that temperature at which it gives off inflammable vapour. The temperature at which a hot body introduced into an inflammable mixture will cause ignition depends partly upon the nature of the body.

In this connexion a case was recorded in the *British Medical Journal* of October 17th, 1925, where a dental warm air syringe set fire to ether vapour in the mouth of a patient and resulted in fatal haemorrhage. The nearest flame was said to have been six feet away, and the nozzle of the syringe was certainly not red-hot. In the correspondence which followed this report the possibility of catalytic action, similar to that induced by spongy platinum, was mooted, and also the chance of burning spirit being carried on to the nozzle from the lamp employed to heat it. I can find very few references to explosions.

By far the most serious fires with ether have been caused by bottles being dropped in rooms with open fires or electric radiators. Ethyl chloride will not ignite in air, but it burns with an apple-green flame on the addition of a little extra heat, and more freely with oxygen; curiously enough, however, the condensed substance burns freely with a luminous and smoky flame, which is coloured green near the liquid surface. The explanation of this may be that the jet of gas becomes too rapidly diluted with air, partly owing to the velocity at which it passes out of the nozzle.

In the case of ethylene and acetylene the matter is more serious. I have never used the latter as an anaesthetic, but I give an oxygen-ethylene mixture for dental surgery as a routine, because I find it better than nitrous oxide. I have been told that bad explosions have occurred with both these gases, and that fatal consequences have ensued. In these cases, however, an explosive mixture exists not only in the patient's lungs, but in the bag used, and there is some risk of an explosive mixture accumulating in a room since so much larger quantities are used. With even saturation in a small room of 1,000 cubic feet a cylinder of 500 gallons would have to be emptied to provide with air a mixture of 1 in 12. This is a considerable volume of ethylene, but saturation will not ordinarily be even; an accumulation of sufficient concentration is always present near the facepiece, so that a lighted cigarette (or, it is conjectured, a spark from a static charge gained by the gas in issuing from the cylinder union) could cause a violent and tragic explosion.

Dr. F. W. Higgins, working at Manchester University in connexion with mining gases, found that the ignition point of an oxygen-ethylene mixture was unusually low, and that the ignition point of a nitrous oxide-ethylene mixture was still lower. In dental practice I use quantities of 10 to 50 gallons frequently, with nitrous oxide and oxygen added, often in a room containing an open fire. I am careful about lights (dentists often have a small Bunsen burner alight) near the patient. A short time ago I kept a man under with an oxygen-ethylene anaesthetic mixture in a dental chair for over an hour and a quarter with nothing but a nose-cap; his condition afterwards was not abnormal.

In view of the likelihood of minute sparking in lamp holders, whether of the ordinary design (bayonet) or any other, I dislike electric lights too near. Where they have to be used it is advisable to make sure that the electrical connexion between the lamp and the socket is sound.

CEREBRAL HAEMORRHAGE IN A YOUNG WOMAN.

BY

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THE following case presents several features of interest, being the account of an apoplectic fit actually observed during a medical examination, so that an opportunity for first-hand information of its onset and progress was presented. It may be recalled that in *The Story of a Surgeon* Sir John Bland-Sutton mentions a case that he personally observed. The type of hyperpiesia in the present case is also discussed, and the occurrence of an unusual example of automatic speech is described.

A school teacher, aged 30, consulted her doctor because of painless haematuria, and was found to have a systolic blood pressure of about 300 mm. Hg. In consequence she was admitted to the Prince of Wales's Hospital under Dr. Browning Alexander to be investigated. The patient had had measles and chicken-pox as a child, but no scarlet, rheumatic, or other severe fever. Her appendix had been removed five years previously, and she had diphtheria severely a year later, being confined to bed for two months. Subject to headaches for many years, she had suffered more acutely for the last three months. Occasionally there was an aura of black spots, and she had often felt sick during the attacks, though vomiting was rare. Two months before admission she had an attack of severe backache, which persisted for five weeks. For two weeks there had been a blurring of vision in the right eye, and she remembered a similar blurring in the left eye some time back; latterly her nose had bled on two occasions. There had been no frequency of micturition, and the menses were always regular; latterly she had felt breathless at times, and had had palpitations. None of the symptoms troubled her sufficiently to seek medical advice until the appearance of blood in the urine a few weeks before admission. There was nothing of importance in the family history.

Condition on Admission.

The patient was thin; the skin was rather dark and the eyes were perceptibly prominent. The thyroid was not enlarged, but the tonsils were definitely infected.

The pulse was regular, forceful, and rapid (110 to 120 per minute). The radial artery was tough and tortuous, and the blood pressure was 280/210. The apex beat was just out of the nipple line; the sounds were forceful, but no bruits were heard.

The basal metabolism inferred by Read's formula was +8. No abnormalities were found in either the lungs or abdomen. The pupils were equal and the reactions normal. The biceps, triceps, supinator, knee- and ankle-jerks were present and equal; the abdominal reflexes were not obtained, and the plantar reflexes were both flexor. The muscles were small, but their power was good.

The Stroke.

At 6.45 p.m., directly after the blood pressure had been taken and the preceding observations had been made, something amiss was suspected. Whereas a few minutes before the patient had responded to the examination a little nervously perhaps, but otherwise in a perfectly normal manner, an interrogation was now received with eyes open and consciousness apparently undisturbed, but with an abortive effort to speak that resembled the functional aphasia of a nervous person in a witness-box. The words would not form, and the patient smiled her helplessness away. There was confusion, but no anxiety on her face, and believing that she was indeed temporarily unnerved, she was reassured, and the examination was suspended for a few minutes.

Returning after five minutes, the motor aphasia was found to be more definite, and for the first time a facial asymetry was noticed. The nervous system was then re-examined, and the following facts were observed: a complete right facial palsy; a flaccid paralysis of the right arm and weakness of the right leg; a right-sided blunting of sensations of touch and pain; and an extensor right plantar reflex. The patient was quite conscious, and understood all that was said to her. She was restless, anxious, and sweating.

At 7 p.m. amyl nitrite was inhaled, and she vomited a little. The systolic blood pressure was now 160 mm. Hg. She was drowsy, and later she went to sleep. At 11 p.m. she was still asleep, and the hemiplegia was quite complete. The systolic blood pressure was 240 mm. Hg.

Subsequent Progress.

The following morning the patient was conscious but drowsy; when spoken to she smiled, and said repeatedly, "I see." She was incontinent of urine and faeces. The urine contained a trace of albumin, but no blood was detected by chemical tests. The blood urea was 51 mg. per cent. Both fundi showed many old haemorrhages, with one fresh one on the margin of the right disc; otherwise the discs were normal.

On the fifth day following the stroke the sphincter control returned. The patient understood all that was said to her, and read the daily papers with interest, but she was still only able to reiterate "I see." The right-sided paralysis was still present, but the jerks were not exaggerated, and the paralysis was still flaccid. No clonus was obtained. The right plantar reflex was doubtfully extensor, the left one flexor. Mr. Flemming reported on the eyes as follows: "Eye movements jerky, but no true nystagmus. No evident paralysis or strabismus. The fundi show a slight neuritis, with much haemorrhagic exudation round the discs. Some radiating lines of exudation from the maculae, as in albuminuric retinitis. Arteries thick, and veins dilated and tortuous."

Towards the end of the second week the speech began to improve. She was able to answer questions, concentrating persistently, but at times the word would not come. Both plantar reflexes were definitely flexor.

One month after the stroke the improvement was more marked, the facial palsy, as well as speech and muscle movement, being much improved. The musculature was very flabby, and there was wasting of the right arm and leg, where the jerks were difficult to elicit. The right plantar reflex was doubtfully flexor. Sensation remained diminished. The sight was deteriorating, and there was marked swelling of both optic discs.

On the thirty-sixth day she had severe headache, and vomited twice. Following this the power of speech, except for the same phrase of "I see," was lost, but an hour later it had returned to its former level. Four days later the tonsils were enucleated under a general anaesthetic by Mr. Ibbotson, since it was considered they were a definite toxic factor. Bleeding was minimal, and the patient stood the operation very well.

On the forty-seventh day the patient felt faint quite suddenly, consciousness, however, being undisturbed. The pulse rate fell from its usual figure of 100–120 to 70 per minute, and the heart sounds were faint. The pupils were small, and reacted to light sluggishly, but no further changes were noted in the central nervous system. The patient lay quietly, with her eyes closed, but speech was undisturbed. The systolic blood pressure had dropped from its usual height to 105 mm. Hg. One hour later it was 170; three hours later 210; five hours later 220; and eight hours after the onset it was 230 systolic. A similar attack had been noticed by the nurses two days previously.

For nearly two more months the patient continued to progress slowly. The pulse rate seldom varied further than the range of

110–120, the systolic blood pressure kept around 220 mm. Hg, and the temperature remained between 98° and 99° F. Repeated examinations of the urine showed little or no albumin; the daily output averaged about 60 ounces during the first three weeks of her stay, and then gradually dropped to about 30 ounces. The blood urea test was repeated several times, but always gave a figure well within the normal. The Wassermann reaction was negative in the blood and in the cerebro-spinal fluid, a lumbar puncture having been performed ten days after the stroke. The fluid was not under pressure, and no blood pigment was found. The sugar estimation was 0.087 per cent., and the chlorides 0.74 per cent. The right-sided paralysis improved steadily, and towards the end of the period a fair amount of power had returned. The arm recovered sufficiently to enable her to feed herself. Passive and active movements were given daily.

Three months after the stroke the general condition began to deteriorate, and evidence of a failing heart appeared. A low-grade pneumonia set in, the patient became delirious, and the blood pressure gradually fell, so that within a week it had dropped to 140. The urine flow diminished, albumin was found in appreciable amounts, and the blood urea increased to 190 mg. per cent. There was a polymorphonuclear leucocytosis, but the temperature remained subnormal. Death ensued nineteen weeks after the initial stroke.

Post-mortem Report.

The body was thin, and there was wasting of the musculature, especially of the right upper and lower limbs. The lungs showed a terminal congestion, and there were some pneumonic patches at the right base. The heart was small and atrophied; aortic arterio-sclerosis was not marked. The liver showed nutmeg change, and the spleen was small and fibrotic. The kidneys were also small and fibrotic, and there was terminal congestion; the cortex was fairly well preserved.

A large old haemorrhage occupied practically the whole of the basal ganglia of the left lobe of the cerebrum, with the original site in the anterior part, about the level of the genu of the internal capsule. The arteries were not unduly changed, and thickening was not a feature.

Hypertension to the extent exhibited by the patient is of rare occurrence at that age, the more so when it does not fall into one of the three common groups of cardiac, renal, or arterial disease. The kidneys were damaged, it is true, but the changes were consistent with what would be considered a normal response to the high blood pressure; the arteries were surprisingly healthy, and their changes cannot be accepted as primary in origin. Moreover, the two attacks during which the blood pressure fell to normal limits strengthen the opinion that the arterio-sclerosis was slight, and that the contractions and relaxations in these vessels were active movements bespeaking an intact musculature. Most diseases of doubtful origin have been ascribed at various times to infections, both focal and acute; this patient had infected tonsils, and she had had diphtheria four years previously. However, Walker and Hare consider that there is no evidence of pressors in infections, and their figures show that a history of diphtheria is more common in normal people than in hypertonics.

There remains, consequently, the consideration whether the case is to be regarded as one of "essential hypertension," due, as some observers believe, to a constitutional state, inherited as a dominant Mendelian characteristic, and rendered active in response to varied stimuli. Having regard to this possibility, permission was given lately to determine the blood pressures of other members of the family, though further examinations were not permissible. The following were the readings obtained: father, aged 59, 155/90; mother, aged 60, 215/140; sister, aged 29, 130/90; sister, aged 21, 155/80. The mother has had rheumatic fever on two occasions, but is in perfect health, and is not supposed to have any heart involvement. The younger sister was quite well until two years ago, when she was in a mental home for a few months, suffering from depression and delusions of unworthiness which had followed an unfortunate love affair. Her recovery has been complete. There is a brother who was not available for examination. Whereas such a casual examination does not permit of a definite conclusion being stated, there seems to be fair evidence in favour of the view that the patient came from a hypertonic stock, and that her case can be placed in the class of "essential hypertonics" mentioned above.

Sir Thomas Horder, in a recent discussion on high blood pressure at the Harveian Society, spoke of "essential hyperpiesia" as being possibly the expression of an endocrine disturbance, adrenal, pituitary, or both. The patient certainly exhibited symptoms attributable to a thyro-adrenal complex—the persistent tachycardia, the dilated pupils, and the moderately prominent eyes. Read's formula, which is considered to be a reliable inference of the basal metabolism, was in this patient slightly raised above the normal figure, and, consequently, it seems justifiable to conclude that the condition was one of congenital hyperpiesia of endocrine origin.

In right-sided hemiplegia, when the speech centre is involved, the aphasia may be complete except for "automatic speech," which may be the first hint of the returning function. In this connexion Kinnier Wilson relates how a patient, on witnessing the spectacle of a Zeppelin in flames, exclaimed "Hallelujah," and then lapsed into a silence as complete as before. In the case under discussion the words "I see" occurred repeatedly after the initial stroke, and subsequently, when speech was lost again. It may well be that the words were occasioned often during her avocation as a school mistress, and that, becoming spontaneous by constant use, they formed the whole extent of her expletives, and at times after her stroke, the sole intact connexion between her speech centre and the exterior.

I wish to thank Dr. Browning Alexander for his permission to publish this case, and Dr. Trounce for his report on the previous history of the family.

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A CASE OF OLD-STANDING TUBERCULOUS KIDNEY.

BY

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THE case here recorded is of interest as showing that even advanced tuberculous changes in the kidney are compatible with prolonged life and comparative good health.

A man, aged 47, was admitted to Guy's Hospital in June, 1930. A brother had died from consumption at the age of 21; the patient lived in the same house with him during most of his illness. At the age of 18 the patient noticed that his urine was turbid, and he consulted the late Professor Julius Dreschfeld in Manchester, who made a diagnosis of tuberculous kidney. For some years the patient was kept under observation, and on several occasions had attacks of haematuria, often severe. At this time he had occasional fever and urinary symptoms such as frequency, but his general health remained sufficiently good for him to work for engineering examinations, and by about the age of 21 he was quite fit, apart from some frequency of micturition and occasional burning sensations in the region of the bladder. From this time until the outbreak of war he led an active life as a civil engineer; in 1914 he joined the Royal Engineers and went to France, serving in a Field Company.

In 1915, while on active service, he passed a few very minute stones, but did not have to report sick. In 1916, while still in France, he had a severe attack of pain in the bladder, and passed very large quantities of pus in the urine. He was invalided to England, and suprapubic cystotomy was performed in a military hospital, but no stones were discovered. The wound healed satisfactorily; the patient made an apparently complete recovery, and was able to return to active service in France in 1917. While on service he was exposed to conditions of great hardship; after six months his symptoms recurred and he was again invalided home. With medical treatment and a vaccine he again recovered completely, and was able to join the Royal Air Force in 1918. After the war he led an active life as an engineer and lived many years in the East. During this period his general health remained good and he put on a great deal of weight, eventually reaching close on 20 st. From time to time there was pyuria and slight frequency.

On May 1st, 1930, he suddenly became very ill; the urine became scanty and extremely purulent, and there was practically anuria for four days. The temperature was high—up to 104°—with severe diarrhoea and vomiting. With transient periods of improvement his illness lasted for six weeks, and he was often thought to be moribund; on several occasions he had severe rigors with high fever. Until he was transferred to Guy's Hospital there were no facilities for investigation, but clinically he was considered to be uraemic, possibly as a result of calculous anuria.

On admission to Guy's Hospital the temperature was 102°, and the urine contained much pus, *B. coli* and streptococci being recovered. The blood urea was 110 mg. per cent., but the patient was passing fair quantities of urine and the vomiting was no longer severe. He was given large quantities of fluid with full doses of potassium citrate. On physical examination he was still well covered, though he stated that he had lost 6 st. in weight. His systolic blood pressure was 105 mm. Hg, but pulmonary emphysema made it impossible to discover the size of the heart. On rectal examination the prostate was found to be moderately enlarged; it felt as hard as a stone.

After a few days in hospital he had recovered sufficiently to enable an *x*-ray examination of the urinary tract to be undertaken. The films revealed the remarkable condition shown in Figs. 1 and 2. Practically the whole of the left loin was filled

FIG. 1.

by an enormous shadow, which roughly conformed to the shape of the kidney. The outline of the left ureter could also be seen as an opaque line extending down to the bladder. In the *x*-ray plate of the pelvis (Fig. 2) the prostate appeared as a dense opacity. Several mobile opacities were seen near the hilum of the left kidney, but these were shown to be calcified mesenteric glands and not stones.

A few days later the patient was cystoscoped. The bladder was small, but there was no difficulty in the passage of the instrument in spite of the calcified prostate. The left ureteric orifice could not be seen, but there was much cystitis, and the right ureteric orifice was ulcerated. After intravenous injection of methyl violet the dye did not appear from the right ureter for fourteen minutes.

The patient remained in hospital for about three weeks and made a steady recovery. The blood urea dropped from 110 mg. on admission to 50 mg. on discharge. Good amounts of urine were passed throughout, and the urine became practically clear.

This case is of interest as an example of abortive attempts at healing by a tuberculous kidney. The whole of the organ appears to have become replaced by a tuberculous pyonephrosis of enormous dimensions, and the tuberculous caseous material has become so infiltrated with lime salts as to produce a dense shadow to *x* rays. The ureter of the affected kidney has never been permanently occluded, as evidenced by the shadows in the *x*-ray film. Inquiries from the patient elicited the fact that from time to time he experienced a sensation "as if a tap had been turned off in the bladder." This was followed by the passage from the urethra of cretaceous material, which the patient described as like tooth-paste in colour and consistency. It would appear, therefore, that from time to time some of the caseous material from the kidney was passed in the urine. No tubercle bacilli could be found, and probably the tuberculous process is completely arrested. The acute symptoms with which the patient started his recent illness were presumably due to an exacerbation of his chronic urinary infection preventing satisfactory functioning of his right kidney.

The case tends to show that, even when there is high resistance to tuberculous infection, involvement of the kidney may lead to serious consequences as the result of secondary urinary infection; it emphasizes the importance of nephrectomy whenever the condition of the other kidney warrants this step being taken. Undoubtedly a tuberculous kidney may be completely transformed into an innocuous calcareous mass, but such spontaneous cure is probably

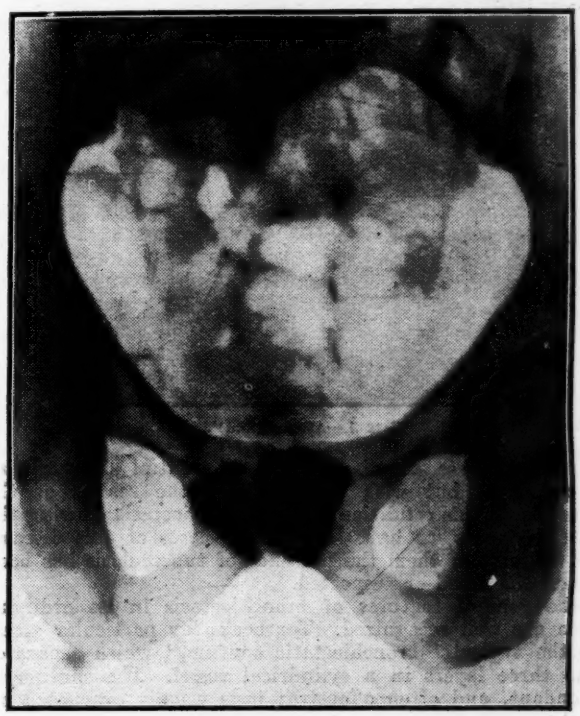

FIG. 2.

very rare. The only example I have met of such a condition was in a woman, nearly 80 years old, who was killed in an accident. One kidney was a hard calcareous mass about two inches in length; the other kidney showed much hypertrophy.

HAEMORRHAGIC DRY BRONCHIECTASIS.

BY

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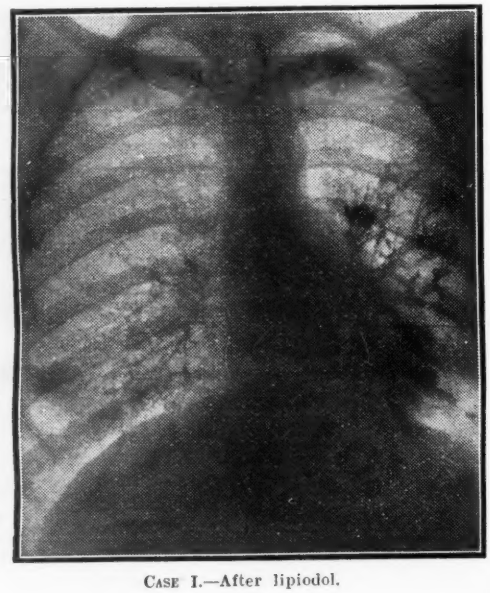
THE importance of the pathological condition here described lies in the tendency that arises, on account of the haemoptysis (which is the main symptom) to group all these cases as tuberculous. To diagnose a case as tuberculous which is not, is to do the patient a great disservice; it may completely alter his prospects in life. There is no doubt that the diagnosis of tuberculosis has generally become more accurate during the past twenty years; it has ceased to be the lumber-heap of unclassified conditions it was wont to be. In order that this improvement may continue it is opportune to lay stress on this not infrequent pitfall in diagnosis.

Haemoptysis, when no primary disease can be found outside the lungs which might have caused it, very frequently leads to the suspicion of tuberculosis; even the absence of physical signs in the lungs does not negative this. Quite large cavities are sometimes revealed by the *x* rays, although no definite evidence can be found clinically. We



CASE I.—After lipiodol.

do not propose to discuss the differential diagnosis of haemoptysis, but wish to point out the reality of the difficulty in this condition of dry bronchiectasis; during the last two years we have seen fifteen cases of this disease, and in most of them the presence of tuberculosis has been either diagnosed or suspected.

The general features of bronchiectasis in its ordinary form are well recognized. Textbooks lay particular stress on the typical "bronchiectatic sputum," which separates into three layers in a cylindrical vessel. The sputum is abundant, and often offensive; it is usually evacuated on change of position, especially on rising and going to bed. There are often periodic attacks of fever, and nearly always clubbing; an exception to all these points is found in apical bronchiectasis, in which condition, owing to the position of the lesions, there are no accumulated secretions, often no cough, and usually no clubbing—an indication, when considered with the dry basal type, that clubbing in this disease is certainly due to toxic absorption.

It is possible that the apical type corresponds with the dry basal type to be described, the satisfactory drainage preventing secondary infection. It is also possible that most cases of bronchiectasis, commencing after pneumonia or empyema, start as the dry type and become infected at varying periods; only rarely do necropsies reveal the dry type, for the patient with bronchiectasis dies from toxaemia after the cavities have become infected. The mere fact that there is no clubbing of the fingers is always a point in favour of the diagnosis of tuberculosis as against bronchiectasis, the apical type and the dry basal type being exceptions to this rule. Since the introduction of lipiodol injection as a means of visualizing the bronchial tree, it has been possible to demonstrate the presence of bronchiectasis in cases in which the amount of sputum is negligible, and it has been our custom to carry out this investigation in any doubtful case, the cases recorded below proving the evidence of its value.

The condition of dilatation of the bronchi without secretion was described by Reinberg[1] under the name of dry bronchiectasis; the following case is a typical example.

CASE I.

A girl, aged 20, had had pneumonia when 8 years old; since then she had been troubled by a cough, with occasional slight expectoration, and for twelve years she had been under observation at a tuberculosis dispensary.

On examination she was found to be a well-developed, healthy-looking girl. No clubbing was present. The physical signs consisted of an impaired note, and diminished breath sounds at the left base behind. The heart was not displaced, but a skiagram showed some increase of shadows in the left basal region. After lipiodol injection well-marked cylindrical and sacculated bronchiectasis was revealed.

The occurrence of haemoptysis in bronchiectasis was pointed out by Goumbault[2] as long ago as 1859, but in these cases the diagnosis was made on the presence of typical physical signs and sputum. After the introduction of intratracheal lipiodol injection it was established that "haemoptysis" might occur in cases of bronchiectasis which gave none of the typical signs or symptoms of the condition.

CASE II.

A woman, aged 28, had had "influenza" eight years before; since then she had been quite well for six years, when she had a haemoptysis. She continued at work during the last two months. She had had repeated haemoptyses, 15 oz. in all.

Her general condition was found to be quite good, and the physical signs in the chest were very indefinite. She was examined by three highly competent clinicians, who were unable to find definite signs which would suggest the origin of the bleeding. No clubbing was present, and the skiagram showed no abnormality. After lipiodol injection an extensive glove-finger type of bronchiectasis was demonstrated.

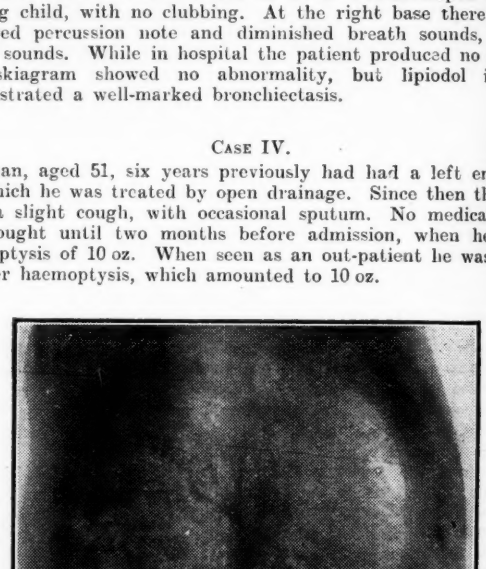
CASE III.

A girl, aged 14, had had pneumonia two years previously, since when there had been a cough, with occasional expectoration. Six months before the examination took place she had had a haemoptysis (3 oz.).

On admission she was found to be a well-developed healthy-looking child, with no clubbing. At the right base there was an impaired percussion note and diminished breath sounds, but no added sounds. While in hospital the patient produced no sputum. The skiagram showed no abnormality, but lipiodol injection demonstrated a well-marked bronchiectasis.

CASE IV.

A man, aged 51, six years previously had had a left empyema, for which he was treated by open drainage. Since then there had been a slight cough, with occasional sputum. No medical advice was sought until two months before admission, when he had a haemoptysis of 10 oz. When seen as an out-patient he was having another haemoptysis, which amounted to 10 oz.

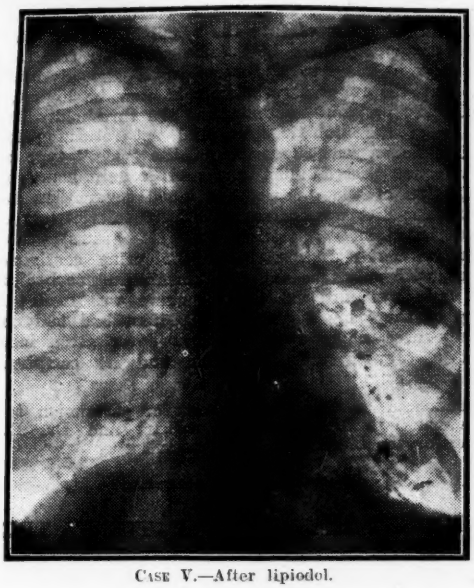


CASE IV.—After lipiodol. Lateral view.

He was a short, robust man, with emphysema; the scar of an empyema drainage wound was visible at the right base behind. Around this region there was bronchial breathing, with a few added sounds. The skiagram showed no abnormality except the resected rib. After lipiodol injection the antero-posterior view showed no definite bronchiectasis, but a lateral view revealed a well-marked saccular bronchiectasis behind.

CASE V.

A man, aged 50, twenty years previously had had a subphrenic abscess and an empyema, which was drained. Since then he had worked as a stevedore. Two years ago there was a haemoptysis of 10 oz., and eighteen months later one of 5 oz. When seen in the out-patient department he was having a haemoptysis of 10 oz.



CASE V.—After lipiodol.

The patient was a robust, healthy man, with no physical signs except for a few added sounds round the empyema scar. A skiagram before lipiodol injection showed no abnormality, but after the lipiodol injection a cavity 1½ in. by 3 in. was demonstrated behind the cardiac shadow.

CASE VI.

A girl, aged 17, had had pertussis when 4 years old, and since then bronchitis. During the last four years there had been repeated haemoptysis, and she had twice been in a sanatorium.

Her general condition was fair, but there was dullness, with added sounds at the left base. A skiagram showed the triangular shadow behind the heart, and lipiodol injection demonstrated bronchiectasis within this shadow.

CASE VII.

A woman, aged 31, had had pneumonia fourteen years previously, with an empyema which had been treated by open drainage. She had never been ill since, until one year ago there was a haemoptysis of 1 oz. Since then she had occasionally coughed up half an ounce of sputum in the day.

She was found in very good condition on examination, and had just gone through her third pregnancy. There were physical signs of fibrosis at the left base, but no clubbing. The skiagram was suggestive of fibrosis at the left base, and lipiodol demonstrated cylindrical bronchiectasis.

CASE VIII.

A woman, aged 40, had been quite well until one month before attending the out-patient department, when she had a haemoptysis of 10 oz., since when occasional expectoration had occurred.

She was a stoutish woman, with no clubbing, but there were definite signs suggesting bronchiectasis at the right base. Lipiodol injection showed a well-marked bronchiectasis.

CASE IX.

A woman, aged 28, had had influenza one year previously. During the three months before she was seen in the out-patient department there had been repeated small haemoptyses. There was a small amount of sputum.

The general condition was fair, but there was an impaired note and diminished breath sounds at the right upper lobe. The sputum examination had been repeatedly negative for tubercle bacilli. The skiagram suggested that there was a small cavity in the region affected, and lipiodol demonstrated dilated bronchi. Six months later the patient had another haemoptysis of 10 oz., but the general condition remained unaltered.

In all the above cases the sputum had been examined for tubercle bacilli, and found negative.

In 1924 Bezançon, Weil, Azanlay, and Bernard[3] recorded two such cases under the heading of "Sèche hémoptorique de la dilatation des bronchis." In 1927 Reinberg reported six more cases. In 1929 Burrell and Trail[4] briefly described one case. The patient of Burrell and Trail and two of Reinberg's patients had been in sanatoriums, and one of ours had been similarly treated. Two others had been suspected of being tuberculous; one had attended a tuberculosis dispensary for twelve years.

The haemoptysis is usually copious, from 3 to 15 oz. Such a large haemoptyis is not commonly seen in an initial haemoptysis in pulmonary tuberculosis; in association with this there is an absence of constitutional signs. The haemorrhages are usually recurrent, and one of our own patients has worked as a domestic servant for the previous seven years, having large haemorrhages every few months, and, except for a day or two's rest on each occasion, continuing her duties. Cases ii, iv, v, vii, viii, and ix were treated in the out-patient department during the period they were having haemorrhages. The physical signs are indefinite, and it is often impossible to detect anything more than a slight degree of fibrosis, the interpretation of the signs being rendered more difficult by the fact that often there has been an empyema or pneumonia in the past on that side.

The majority of patients give a history of a previous inflammatory condition of the lung—7 of the cases we record here (3 empyemata), and 5 out of 6 of Reinberg's cases. The history of a previous acute inflammatory condition of the lung is in keeping with the usual etiology of bronchiectasis, and one might reasonably assume the progression of the disease, through a symptomless dry bronchiectasis to the later stage when the bronchiectatic dilatations become infected and begin to secrete, as being the usual evolution of the disease in cases arising after pneumonia and such conditions. One of the Bezançon cases was watched from the dry to the moist stage, and doubtless now that the condition is recognized a follow-up of cases in the future will show this to be a common sequel.

The interval between the acute illness and the haemorrhage which brought the patient for medical advice is instructive, twenty, fourteen, eight, two (6 cases), and one year elapsing in some of our cases; in Reinberg's cases the longest period was twenty-eight years and the shortest five years. We feel confident that many practitioners will remember one or more cases which probably came in this category, and that the condition must be by no means uncommon.

Treatment.

In none of the cases reported in the literature, nor in our cases reported here, has any radical measure been undertaken to deal with the disease, because all the patients have been in good condition, and one has hesitated to suggest artificial pneumothorax, phrenic avulsion, or thoracoplasty, these methods being the only available ones for dealing with the disease.

One of us had a phrenic avulsion performed on a case (not in the series) in which an artificial pneumothorax could not be induced, on account of severe haemoptysis, with an apparently good result; if the haemoptysis threatens life (Devic and Berthier[5] reported four fatal cases) one of these measures would have to be undertaken. It is, however, a point for consideration whether one should conduct some treatment to avoid infection of the cavities; this question can only be solved by watching the course of the cases now that we have recognized the condition, since it is seen that many of them escape infection for years.

The *x*-ray appearances of all such cases are of interest; often the condition is not distinguishable at all without the use of lipiodol. Space prevents us giving more than nine examples.

Conclusion.

Cases presenting the symptom of haemoptysis, when the physical signs are inconclusive, and where skiagrams show no definite evidence of pulmonary tuberculosis, should be subjected to the investigation of a lipiodol injection of the bronchial tree, and subsequent radiology.

Our thanks are due to Dr. Sparks and Dr. Wylie for the radiograms reproduced.

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FOUR DIFFERENT TYPES OF BLOOD SUGAR CURVE IN ONE PATIENT WITHIN SEVENTEEN MONTHS.

BY

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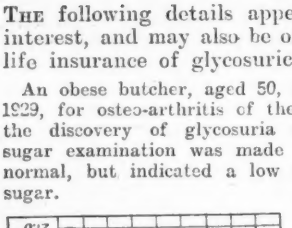
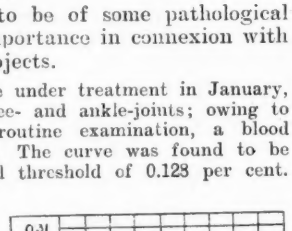
The following details appear to be of some pathological interest, and may also be of importance in connexion with life insurance of glycosuric subjects.

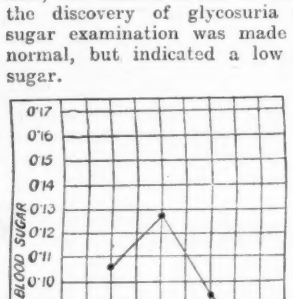
An obese butcher, aged 50, came under treatment in January, 1929, for osteo-arthritis of the knee- and ankle-joints; owing to the discovery of glycosuria on routine examination, a blood sugar examination was made (A). The curve was found to be normal, but indicated a low renal threshold of 0.128 per cent. sugar.



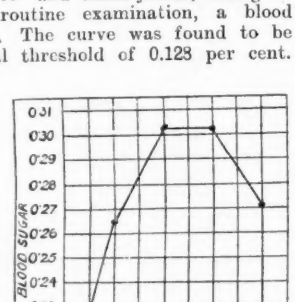
Curve A.—January 28th, 1929.



Curve B.—May 16th, 1930.



Curve C.—May 26th, 1930.



Curve D.—June 5th, 1930.

Curve A.—Fasting blood sugar (not estimated). Glucose 40 grams by mouth. Blood sugar: 1/2 hour after, 0.108 per cent.; 1 hour after, 0.128 per cent.; 1½ hours after, 0.095 per cent.; 2 hours after, 0.077 per cent. Urine: fasting, 0; 1/2 hour after glucose, 0; 1 hour after glucose, ++; 1½ hours after glucose, +; 2 hours after glucose, +.

Curve B.—Fasting blood sugar, 0.188 per cent. Glucose, 40 grams by mouth. Blood sugar: 1/2 hour after, 0.266 per cent; 1 hour after, 0.304 per cent.; 1½ hours after, 0.304 per cent.; 2 hours after, 0.272 per cent. Urine: fasting, +; 1/2 hour after glucose, ++; 1 hour after glucose, ++; 1½ hours after glucose, ++; 2 hours after glucose, ++.

Curve C.—Fasting blood sugar, 0.096 per cent. Glucose, 50 grams by mouth. Blood sugar: 3/4 hour after, 0.14 per cent; 1¼ hours after, 0.26 per cent; 1¾ hours after, 0.17 per cent.; 2¼ hours after, 0.16 per cent. Urine: fasting, sugar 0, acetone +; 3/4 hour after, sugar 0, acetone +; 1½ hours after, sugar +, acetone trace; 2¼ hours after, sugar trace, acetone 0.

Curve D.—Fasting blood sugar, 0.124 per cent. Glucose, 50 grams by mouth. Blood sugar: 1/2 hour after, 0.132 per cent.; 1 hour after, 0.24 per cent.; 1¼ hours after, 0.172 per cent.; 2 hours after, 0.12 per cent. Urine sugar: fasting, 0; 1/2 hour after, 0; 1 hour after, 0; 1½ hours after, +; 2 hours after, +.

(The figures at the base of the charts represent the time in hours after administration of glucose.)

The patient's teeth were extracted, and he was treated by radiant heat baths, and also by thyroid gland (dried) 1 gram daily till April, 1930. During eleven months of this period he lost weight slowly, presumably owing to the action of the thyroid; he then rapidly lost 3 st. in the course of four months, concurrently with the development of symptoms of thirst and polyuria, and the presence of increased quantities of sugar, together with ketone bodies and albumin in the urine. This was so suggestive of diabetes mellitus that a second curve (B) was prepared after re-admission to hospital, the patient having been kept on a light diet, with restricted carbohydrate only, and without thyroid, for four days. This curve was typical of diabetes mellitus, but sugar was passed in the urine throughout.

The patient was put on a strict diabetic diet of approximately 1,000 calories containing 25 grams of carbohydrate, 58 grams of protein, and 75 grams of fat; the symptoms of thirst and polyuria then disappeared, and he became completely free from sugar in two days. Owing to the cessation of the glycosuria, suggesting that the renal threshold might now be higher, a third curve (C) was prepared to determine the threshold. This, while still being of the diabetic type, and not returning to normal within two hours, was suggestive of the "lag" type of curve; sugar was not passed until one and a half hours after the administration of the glucose, the blood sugar then being 0.21 per cent. The diet was increased to 1,500 calories (carbohydrate, 43 grams; protein, 78 grams; fat, 112 grams); the patient remained without symptoms, and the urine continued to be sugar-free, with only traces of albumin and ketone bodies. After another ten days' interval a final curve was made; this was definitely of the "lag" type. The patient had had no thyroid for twenty-seven days previously, was never given insulin, and was not of Jewish extraction. He had no complications of diabetes mellitus.

I am indebted to Dr. Batty Shaw for permission to publish this case, and to Dr. G. W. Goodhart and Dr. B. W. S. Mackenzie for the blood sugar estimations.

SUBSEQUENT HISTORY OF PATIENTS TREATED WITH A RESIDUAL ANTIGEN OF B. TUBERCULOSIS.

BY

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It is probable that in no disease is the value of a remedy more dependent upon remote results than in pulmonary tuberculosis. A preliminary paper in which I described the preparation of the antigen and the immediate results obtained was published in 1928 in the July issue of the *British Journal of Tuberculosis*, and the present note deals with the after-history of the cases then described. At that time no patient was refused treatment because of the state of the disease; consequently, the records were not improved by the fate of these hopeless cases. It was desired to test the antigen thoroughly, and the only requirement was that there should be no doubt about the certainty of the diagnosis. The sputum was positive in 79 per cent.; the remaining patients had had positive sputa in the past, or had spent one or more periods in sanatoriums, and presented clinical signs and symptoms that were unquestionable.

Of 67 consecutive cases reported, 10 patients died during or shortly after the treatment, 12 were not improved and were classified as failures, and 45 were said to show definite clinical improvement after a course of treatment lasting three months. The assessment was made immediately the course finished, in every case by the clinician in charge of the patient, usually the private doctor. Care was taken that the present writer offered no opinion on a case. All these cases have now been traced after an interval of two to three years has elapsed, and the results are here set forth.

The original deaths and the original failures are added together, since such deaths are obviously part of the original failures; they form a group of patients numbering 22, of whom 2 had improved, 4 had not improved, 15 had died, and one was untraced. Thus the percentage of those improved was 9, and of those now alive 29.

The patients who were originally improved numbered 45; of these, 32 were found to be still improved after two or three years, 6 had not improved, 5 had died, and 2 could not be traced. The percentage of those improved was 74, and of those now alive 88.

These results support the original observation that the conditions requisite for success with antigenic treatment in pulmonary tuberculosis are the same as for antigenic treatment of any other disease. It is essential for success that the patient shall possess some reserve of resistance, although that factor may need the antigen to call it into operation.

The cases that originally did badly show deplorable results later, whereas those in which there was an immediate response now give far superior results. The difference is so marked that it can be used for purposes of prognosis; it seems reasonable to infer that a patient who does badly during and immediately after antigen treatment has a bad prognosis, whereas those who improve after the treatment have a much better chance of ultimate survival.

The after-history of the groups testifies to the accuracy of the original clinical work, and it is only just to record my deep obligation to all the Salford practitioners who sent patients and reported upon them.

The accuracy with which the groups were originally formed lends increased value to the clinical opinions given on the same cases now, but it is recognized that there is no agreement among clinicians as regards data useful for prognosis; so the percentage of those now alive has, therefore, been given, for at least there can be no question as to the living and the dead. It will be seen that the proportion of survival after two to three years is three times as high in the group that responded immediately to treatment. It may be added that in the case of the 32 patients who remain improved the benefit is such that 19 are at work without ill effect; the majority of the remainder are women doing housework, which is difficult to assess. In any future series the obviously hopeless cases would be refused treatment, and the results no doubt would show a higher proportion of success.

Attention was concentrated upon pulmonary tuberculosis because it constitutes the largest section of the disease, and has a bad prognosis as it is usually treated. Other forms of tuberculosis have been investigated, and it has been found that the most spectacular results were obtained in young adults with tuberculous enteritis but with no clinical evidence of pulmonary involvement. In this class the antigen rapidly brought down the temperature, and the patients usually gained 30 or 40 pounds in weight during the treatment; all clinical signs cleared up, and the patients remain apparently cured. The utility of the antigen is necessarily limited by the comparative rarity of the condition.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

TUBERCULOUS ADENITIS WITH DERMAL BULLAE.

The following case appears to be worthy of record in view of the unusual occurrence of tubercle bacilli.

A plumber, aged 41, was admitted to the West Riding Sanatorium on October 1st, 1929; he had been healthy until four years previously, when the illness commenced. A brother had died of pulmonary tuberculosis.

On the right side of the neck above the clavicle was a diffuse, fairly tense, tender, and fluctuating swelling; in the posterior part of this could be felt deeply some harder masses of obviously enlarged and matted cervical glands. There was in this region the scar of an old gland operation. The skin over the swelling was quite healthy, but below the angle of the jaw on each side was an ulcerated area similar to the ones to be described. The swelling had commenced a month before admission, but the ulceration was of much longer duration.

The left forearm and hand were swollen; the skin was extensively and irregularly involved in a sloughy, ulcerative condition, particularly in the interdigital clefts and on the back of the hand. On the forearm about the elbow were three clear-cut shallow ulcers, one to two inches in diameter, with a low granulating surface. Purulent subcuticular bullae had formed over the rest of the forearm; some of these had ruptured, leaving a sloughy base, this being apparently the early stage of the more clearly marked ulcers previously mentioned. The appearance was that of a pyogenic infection of the skin with little inflammatory reaction. Fresh pustules appeared, containing greenish pus and having no inflammatory areola, and these also underwent a similar breaking down. The arm was not examined radiologically, but there did not seem to be any involvement of the bones. This condition had commenced about four years before.

A similar condition commencing at the same time on the left hip had cleared up; more recently, two small ulcers in the region of the great trochanter had again appeared, but presented no special features. There was no indication of pulmonary tuberculosis, and the sputum, when obtained, was found to be negative for the tubercle bacillus.

Three days after admission the cervical swelling was explored in its lower part, and 34 c.cm. of thick, greenish pus with a foul odour were aspirated. A smear of this pus stained by Ziehl-Neelsen's method showed enormous numbers of typical tubercle bacilli and polymorphonuclear leucocytes, many of which contained clumps of the bacilli. Rather less than three weeks later 52 c.cm. of pus were withdrawn, and 8 c.cm. of Calot's fluid were injected. Three days later still the abscess was found to be very tense; the pus had suddenly made its way to the skin at two points close together in the upper part of the swelling, the appearance being as if two large deep-seated pustules had formed. Despite the aspiration of another 65 c.cm. of purulent fluid the abscess burst. This pointing and bursting took place with an entire absence of inflammatory reaction, which otherwise might have suggested a secondary infection of the abscess. Smears of pus from an unruptured pustule on the forearm also contained the tubercle bacillus, although in much smaller number than in the case of the pus from the cervical abscess.

The patient's general condition was poor from the outset; his temperature was high and swinging (100°–103°), with a pulse persistently over 110 at night, and he showed evidence of grave toxaemia. He gradually sank and died on December 7th.

This case seems to be of interest in three particulars.

1. The presence of the tubercle bacillus in the pus from the cervical abscess in such enormous numbers is very unusual; the organism is rarely to be found at all in the pus from a tuberculous abscess.

2. The rapid manner in which the abscess filled up and finally burst, with no preliminary warning changes in the skin, was surprising.

3. The extensive and atypical lesions on the forearm simulated a low-grade pyogenic infection; they were, however, proved to be tuberculous by the finding of the organism in the pus from an unruptured bulla. No doubt the lesions were later contaminated by pyogenic organisms, but the initial lesion would appear to have been tuberculous.

I am indebted to the medical superintendent, Dr. Thompson Campbell, for permission to report on this case.

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CONGENITAL UMBILICAL HERNIA OF LIVER AND BOWEL.

The rarity of the following condition entitles it, perhaps, to publication.

A baby, two weeks premature, was brought to the Bradford Children's Hospital thirteen hours after normal birth; the mother had had two other healthy children. It appeared healthy and well developed, except that the recti muscles were separated for one and three-quarter inches at the umbilicus, through which there was an expansion of the base of the umbilical cord, forming a thin transparent sac about the size of an orange. The sac was very tense and elastic, and it was obvious that the contents consisted of at least two different structures; the larger appeared dark red and opaque, the smaller part being translucent. The umbilical cord was continuous from the lower aspect of the expansion as a normal cord.

Under chloroform and ether anaesthesia an attempt was made to reduce the contents of the sac, but this was unsuccessful; the part of the cord forming the wall of the sac was then incised, and the sac was opened. Part of the contents was found to consist of a dark red, almost spherical, mass with paler areas; it resembled liver substance and was about the size of a small orange. The wall of the sac was adherent to the mass along its mid-line on the anterior surface, and had to be dissected off. There was also small bowel in the sac, which was returned to the abdomen; the red mass was traced upwards and appeared to be continuous with the liver. Since the child's condition was poor, it was not considered advisable to explore further. Owing to the smallness of the orifice, compared with the hernia, the mass was with difficulty returned to the abdominal cavity. The excess of the sac and the cord were excised, and the abdomen was closed. The child only survived three and a half hours after the operation.

The mass was found to consist of liver representing more than half of that organ; at its extremity was the ligamentum teres. The line along which it had been dissected from the sac was its anterior peritoneal reflexion. On its lower surface was the gall-bladder, practically concealed in liver substance, and three-quarters of the bile duct. No other developmental abnormalities were found.

I am indebted to Mr. Gordon D. Latimer, assistant surgeon to the hospital, for permission to record the case.

Bradford. Kathleen A. Allison, M.B., Ch.B.

Reviews.

THE PHYSIOLOGY OF SENSATION.

The sensory phenomena attending the division and subsequent regeneration of peripheral nerves have attracted considerable attention since the classical work of Head, and the conceptions which arose out of that work have been the subject of a good deal of further work and of much controversy. The occasional accidents of daily life, and the innumerable injuries suffered in the war, have given Professor J. S. B. Stopford an opportunity to study the question anew, and the results of his investigations are given in his recent book on *Sensation and the Sensory Pathway*.[1] The results reached by him are so satisfying that it can be said without hesitation that by a rare combination of observation, deduction, and philosophic synthesis he has made a most valuable contribution to the subject.

Stopford has not only closely confirmed most of Head's observations, but has made further progress in the same direction. Cutaneous sensibility he regards, much as Head did, as falling into two categories: the finer, discriminative sensibility, of more recent phylogenetic acquisition, with the interpretation of which the sensory cortex is mainly concerned; and the quite distinct, cruder, protective sensations, affective in quality and exhibiting an all-or-none character of response, which are dealt with mainly by the thalamus. Careful analysis of deep sensibility shows that this also is divisible into sensations of two types—primitive protective and finer discriminative, the latter being concerned particularly with localization and with the appreciation of passive movement. The loss and dissociation of sensation following the division and suture of a peripheral nerve may, under suitable conditions, extend to the deep sensibility, which may also show an earlier return of the more primitive components of sensation. It is, moreover, noteworthy that in the glans penis the deep sensibility shows a lack of localization and a strongly affective character—qualities which are comparable with those of the purely "protopathic" superficial sensibility of the same region, and with similar qualities of both deep and superficial sensibility in skin areas during the first stage of recovery from nerve section.

In Head's experiments on his own hand, the nerves divided—radial and musculo-cutaneous—were apparently almost purely cutaneous, but this is by no means the case in all subjects. Stopford has found, by detailed anatomical and clinical studies, that the subcutaneous supply to the hands and digits comprises fibres for tactile pressure and pressure pain which mainly accompany tendons and blood vessels, and to a lesser extent fibres from main deep or cutaneous nerves and those responsible for the finer elements of deep sensibility, such as posture recognition and localization, which are supplied by branches from the ulnar, median, and cutaneous nerves. The fundamentally different types of sensation have separate paths in the spinal cord—the primitive protective type crossing over to ascend in the posterior spino-thalamic tract of the opposite side, while the finer discriminative functions are related to the phylogenetically more recent posterior columns of the same side. In the brain stem there is further separation of these discrimination tracts into those concerned with tactile discrimination and those for position sense. The axones of the tertiary neurones represent two main streams—one to the affective nucleus of the thalamus, and one to the sensory cortex. The thalamus is concerned with the crude protective functions and the affective aspects of sensation; its response is of the all-or-none character, so that when it is released from the inhibitory control of the sensory cortex there is affective overaction in sensation. The sensory cortex is essential for localizations and discriminations; it responds to different strengths of stimuli, and enables comparisons to be made between them.

After nerve section and primary suture, the recovery of both superficial and deep sensibility occurs in two closely comparable stages, the return of discrimination in both instances being delayed and rarely complete; after secondary suture the return of the discriminative properties of the sensations is much less complete, and not infrequently altogether lacking. For clinical purposes it is convenient to disregard the subdivision into superficial and deep, and to separate sensation into two kinds, one served by the thalamic system, the other by the cortical. The former is protective and affective in type, the latter discriminative; each, as already explained, includes both superficial and deep components; the thalamic returns first and most completely, the cortical later and less completely. The reason why recovery is delayed and incomplete in the latter is simple and adequate; it is due to the crossing of fibres on regeneration, and to the fact that the sensations depend, not on the end-organ, but on the central connexions. The thalamic connexions, being relatively simple, will be established early; whereas the cortical connexions will need much re-education. Until this process has advanced far enough to give proper function the cortical inhibition of the thalamus will not make itself evident, with the result that there will be affective overaction. Professor Stopford presents his thesis with great skill and clarity, and he has succeeded in throwing much light upon this interesting and important subject.

[1] *Sensation and the Sensory Pathway.* By John S. B. Stopford, M.D., F.R.S. London: Longmans, Green and Co. 1930. (5½ × 9, pp. xii + 148; 17 figures. 7s. 6d. net.)

JOINT INJURIES.

The fact that Sir Robert Jones's little book on *Injuries to Joints*,[2] has reached a third edition, and that eleven impressions of it have been necessary in fifteen years to meet the demand, shows that it does far more than merely meet the needs of practitioners who, as the preface to the first edition expressed it, had "left the quiet paths of private practice for the more eventful career of military surgery." The first edition was reviewed in our issue of September 25th, 1918. The author in this, the third edition, has, he tells us, been careful not to change the character of the book in any way, but he has enlisted the services of Mr. Harry Platt of Manchester, and together they have brought it up to date and rewritten some parts, such as those on ischaemic paralysis in relation to its causation and prevention. Although this disease can hardly be claimed as the result of an injury to a joint or joints, yet as it may and does occur during the treatment of injuries of joints, and can be such a tragedy for the patient, and even more so for the surgeon's reputation and pocket, we are glad that Sir Robert Jones and Mr. Platt have disregarded the bonds of strict definition and have included it.

We have here, from the pen of a master, in less than two hundred diminutive pages, a vast amount of good advice and sound teaching in the bloodless surgery of joints. The reader of this book who pays heed to these precepts may be sure that in following them he is taking the best course for his patients and for himself. Expert advice as to what position or what splint he should choose for putting up any injury to a particular joint is placed at his disposal, and the advice is given in clear, plain language.

We are a little doubtful as to the author's meaning in his remarks on the operative treatment of hallux valgus. We fully agree with him that a pseudarthrosis should be aimed at by excision of the metatarsal head, and the freer the resulting movement the better, but what does he mean by excision of the joint, which he deprecates? We must confess that we do not know who are the surgeons who recommend removal of the base of the phalanx as well as the head of the metatarsal for this deformity. We are interested to find that Sir Robert Jones still advocates excision of portions of the tendons of the long and short peronei for certain forms of spasmodic flat-foot. In the discussion on this subject at the Royal Society of Medicine, on which we commented on March 15th last, most of the speakers had either abandoned this treatment or resorted to it only rarely. That it is efficacious we can testify from experience.

[2] *Injuries to Joints.* By Sir Robert Jones, Bt., K.B.E., C.B., Ch.M., F.R.C.S., F.A.C.S. Third edition. Oxford Medical Publications. London: Milford, Oxford University Press. 1930. (F'cap. 8vo, pp. 195; 183 figures. 6s. net.)

CLINICAL OBSTETRICS.

PROFESSOR PAUL T. HARPER'S *Clinical Obstetrics*[3] is a comprehensive and sound survey of the subject it approaches, but there are now so many such works that one looks in vain for fresh information in each new volume. Without depreciating the many excellent textbooks on midwifery which are the work of single authors, we cannot but feel that there is now likely to be more value in the work of several collaborators, where the experience is wider and merely personal dicta are less frequent. The value of the present work is somewhat lessened by the illustrations, which are often far from clear, and in our opinion are for the most part executed in a style hardly suitable for the purpose. The chapter on placenta praevia is excellent and full, though its arrangement might have been clearer; and it is surprising to find no reference to the use of Willett's forceps, which in this country have been proved to be of inestimable value in dealing with this condition. Professor Harper also recommends the injection subcutaneously of alpha lobelin in cases of serious asphyxia neonatorum; others have found its action to be quicker and more efficacious if injected into the umbilical vein. In the chapter on version we looked for an opinion on the methods of Potter, who performs version in all cases and always delivers by the breech. Professor Harper is only half-hearted in his disapproval of this practice. There can be no doubt that the technique of version and breech delivery has improved immensely during the last few years, but many obstetricians still believe that it is a method to be reserved for cases of emergency. It is usually the task of the surgeon to assist and not to reorganize the methods of nature.

RADIOGRAPHIC TECHNIQUE.

Roentgenographic Technique[4] is the title of an elaborate book by DR. DARMON ARTELLE RHINEHART, restricted to this side of radiological practice. The author claims that all books on this subject already published are either out of date or else incomplete in some particular; and, to quote from the preface:

> "By introducing a series of experiments for determining the operating peculiarities of each Roentgen-ray machine, by providing a simple experimental method of measuring the Roentgen-ray output of each equipment, and by basing exposure on the thickness and roentgenographic density of parts of the body, a method of perfecting a roentgenographic technique has been devised that may be used in any Roentgen-ray laboratory, irrespective of the apparatus it may contain."

When we come to examine this book in detail we find that its twenty chapters run to some three hundred and seventy pages, together with a comprehensive index. There are also numerous illustrations, diagrams, and charts. Each chapter has a short bibliography attached bearing on its subject-matter, the articles referred to being almost entirely drawn from American journals. The opening chapters deal shortly with electricity and electric currents, *x*-ray machines, tubes, dangers, the nature of *x* rays, intensifying screens, the Potter-Bucky diaphragm, and the dark room and development of films. The author follows these with a description of some ten experiments, which might be said to be the subject-matter of his book. The first three of these include the directions for making a working calibration of any *x*-ray machine producing rectified current, irrespective of type. The following three experiments are included to illustrate and explain the laws which govern exposures. A basic roentgen technique is explained, and followed by descriptions of a few more points which bear on the subject. It is all very interesting, and it is obvious that the author has put in an enormous amount of time and work in elaborating his technique, but it is a fair criticism to say that it is by no means so simple as is suggested, and it appears to be very doubtful if it will come into general use either in hospital or in private *x*-ray clinics.

Further advanced experiments follow, the objects of which are to teach a method of photographically measuring the *x*-ray output of an *x*-ray machine, to make a determination of the relationship between thickness and voltage, and to prepare a thickness-voltage chart. The latter part of this book deals, in about two hundred pages, with a detailed description of the technique required for obtaining radiographs of the various regions of the human body. Each part of the anatomy is treated separately, and numerous photographs as well as radiographs illustrate the text. We have nothing but praise for this portion of the book; the illustrations are excellent, and are so arranged as to show quite clearly the exact position of the part under examination and its relationship to the *x*-ray tube and to the film, whilst alongside of this is a reproduction of the resulting radiograph. We are able to congratulate the author on a masterly production.

DIATHERMY IN OTO-LARYNGOLOGY.

THE latest addition to the Anglo-French Library of Medical and Biological Science, produced under the general editorship of Drs. Crookshank and Cruchet, is *Diathermy, Medical and Surgical, in Oto-Laryngology*,[5] by DR. DAN MCKENZIE. This belongs to the more practical side of the collection, but it exhibits a happy choice wherein practice follows a strictly scientific application of the physical properties of electrical currents. The editors therefore merit a word of congratulation as well as the author.

The general principles and application of diathermy have become tolerably familiar during the last twenty years, as its use has become general. The field of medical diathermy is still extending in various directions, but surgical diathermy has proved particularly acceptable to laryngologists. Dr. Dan McKenzie shows, however, that medical diathermy also is a valuable agent in otology and laryngology. Patients with laryngitis, coryza, eczema, furunculosis, and tinnitus may derive benefit from this treatment, and the author sets out fully the indications and methods of application. The use of surgical diathermy falls into two main divisions—for non-malignant conditions and for cancer. It can be used for the gradual destruction of tonsils as an alternative to excision, for the removal of innocent tumours, and for the treatment of hyperplastic laryngitis and lupus. Its chief use, however, has always been for the treatment of cancer, and a complete account is given of what can be accomplished and how the best results are to be obtained. The pharynx and tongue are the principal sites, but its possibilities in other places are also explored. The relative merits of excision, radium, and diathermy are assessed briefly, and it is also shown how they can be combined with advantage. A sufficient description of the underlying principles is given, with an account of the different ways in which the electric current can act through the medium of the various instruments.

The book has been written from an extensive clinical experience, and is far more than a compilation. It collects, however, under one cover much information which otherwise could only be acquired from scattered sources, so that it has a double interest for the laryngologist, and provides him with many additional therapeutic resources.

INFANT NUTRITION.

DR. W. MCKIM MARRIOTT'S contributions to the study of paediatrics are so well known that the appearance of a textbook by him on *Infant Nutrition*[6] is most welcome. He has written a fine comprehensive volume which begins with chapters on metabolism, the nutritional requirements of infants, digestion in infancy, and so passes by logical steps to the actual feeding details. Dr. Marriott's interest in acid milks might well have resulted in a one-sided exposition of artificial feeding, but this is not so, and the case for lactic acid milk is presented so fairly and soberly as

[3] *Clinical Obstetrics*. By Paul T. Harper, Ph.B., M.D., Sc.D., F.A.C.S. Philadelphia: F. A. Davis Company. 1930. (6 × 9¼, pp. xix + 627; 84 plates. 8 dollars net.)

[4] *Roentgenographic Technique*. By Darmon Artelle Rhinehart, M.D. London: H. Kimpton. 1930. (6 × 9½, pp. x + 388; 159 figures. 28s. net.)

[5] *Diathermy, Medical and Surgical, in Oto-Laryngology*. By Dan McKenzie, M.D., F.R.C.S.Ed. The Anglo-French Library of Medical and Biological Science. London: Kegan Paul, Trench, Trubner and Co., Ltd. 1930. (5½ × 8¼, pp. xiv + 184; 22 figures. 10s. 6d. net.)

[6] *Infant Nutrition*. By Williams McKim Marriott, B.S., M.D. London: H. Kimpton. 1930. (Sup. roy. 8vo, pp. 375; 53 figures. 25s. net.)

to be most convincing. Chapters on marasmus and on vomiting in infancy are particularly valuable for the wealth of practical detail they contain, but unfortunately the chapter on diarrhoea is rather spoilt by too great an insistence on the importance of otitis media as a factor in severe cases. There is also a surprising passage on page 103, which seems to mean that while a very young baby can go through the night without being fed, it "may be advisable to resume one of the night nursings" later on in the first year. One other criticism is that in describing congenital pyloric stenosis Dr. Marriott does not consider the feeling of the tumour essential in diagnosis. This statement is surely out of date as far as English workers are concerned, and can only lead to confusion between real stenosis cases and examples of pylorospasm. Chapters on rickets, tetany, and scurvy are included, and there is an wholly admirable exposition on anhydraemia, acidosis, and alkalosis, written in conjunction with A. F. Hartmann. Throughout the book details of cases are given, and it is obvious that the work is based upon wide clinical experience. It can be warmly recommended to all students of the difficult art of infant feeding.

DR. BERNARD MYERS has contributed a little book on *Modern Infant-Feeding*[7] to the "Modern Treatment Series," and it must be admitted that this modest volume comes well out of an inevitable comparison with Marriott's larger textbook. Dr. Myers also bases his advice upon physiological principles, and his chapter on breast-feeding is particularly good. In his summary of the best methods of artificial feeding the comments on lactic acid milk are especially good, but the details about the size of feeds are too condensed, so that the account of calorie feeding will almost certainly be unintelligible to anyone without a sound previous acquaintance with this subject. This handy pocket-book is well produced, but contains an unnecessary number of italicized passages, which spoil the appearance of many pages.

NOTES ON BOOKS.

MISS LYLA M. OLSON, in her *Improvised Equipment in the Home Care of the Sick*,[8] expresses her thoroughness by inditing separate prefaces, or invocations, on separate pages, to the private duty nurse, the public health nurse, and the student nurse. A further preface to the general public tells how Miss Olson had difficulty in collecting improvised equipment for the purpose of a demonstration sponsored by the Minnesota Board of Examiners of Nurses. The book is well illustrated, and shows a number of ingenious devices made out of grocery boxes, wooden barrels, chairs, bricks, and other odds and ends. Miss NORMA SELBERT'S little book on the *Home Care of the Sick*[9] is described as a non-technical book, written for the benefit of "homemakers" and for "students who are carrying vocational courses in high schools and colleges." If the homemaker is sufficiently level-headed not to be frightened by the numerous duties imposed upon her, she will no doubt learn much from Miss Selbert.

The English edition of Messrs. MERCK'S *Annual Report*[10] now appears in three parts a year. Part III for 1929 contains two short articles on tropical diseases, which are of general interest. Dr. Heraldo Maciel reports on the treatment of hookworm infection among sailors by carbon tetrachloride. A single dose of 4 grams cured 70 per cent. of cases, and no toxic effects were observed. Dr. D. Teitel writes on the treatment of amoebic dysentery in infants. The article is an abstract of an address delivered at the first Paediatric Conference at Jerusalem. The results produced by emetine, yatren, and stovarsol are compared. Emetine was the most effective and yatren the least effective, whilst stovarsol produced the highest incidence of toxic effects. The author concluded that emetine was the most important of these remedies. The best results were obtained by commencing treatment with emetine and continuing with one of the other drugs. These conclusions were drawn from the results of about six hundred cases. The report also contains short notices of a number of drugs. Plasmochin, the new quinine substitute, is stated to have the composition of alkylamino-6-methoxy quinoline. It is best given in small doses (0.02 gram) repeated three to five times a day. This method avoids the unpleasant toxic effects that may be produced by large doses. A number of reports regarding the use of thallium acetate as a depilatory have been brought together, and it is concluded that the dose should not be repeated even after an interval of some months, and that it is unsafe to use thallium after puberty. Part I for 1930 contains an interesting article by Professor Carrasco on the history of the ancient University of Salamanca. This was founded early in the thirteenth century, and in the fourteenth century ranked with Paris, Bologna, and Oxford as one of the four famous universities of the world. Unfortunately it remained unaffected by the intellectual movement of the Renaissance, and in consequence declined during the seventeenth and eighteenth centuries. During the present century there has been a fresh development of activity, especially in its medical school, and the future of this ancient seat of learning appears hopeful.

Aids to Zoology,[11] by H. LISTER, is a brief outline of systematic zoology suitable for students who are revising the subject for preliminary examinations. The text is clearly arranged, and is illustrated by figures and diagrams.

Frequent reference has already been made in these columns to Professor Honigmann's series of textbooks on differential diagnosis, the most recent being to Part IV of volume i of the series which dealt with diseases of the alimentary system (June 21st, 1930). Volume iii of the series is devoted to Practical Differential Diagnosis in Psychiatry.[12] The author is Dr. HERMANN HAYMANN of Badenweiler; and there is an additional section on the diagnostic significance of intelligence tests by Dr. ERICH STERN of Giessen. Under the heading of general symptomatology there is a detailed description of the various bodily and mental symptoms encountered in the psychoses, and the various psychoses themselves are considered seriatim in the ensuing section. The concluding portion of this section deals with the psychoneuroses, latent psychopathic tendencies, and disorders of personality make-up. There is also a chapter on feigned insanity. Each author has contrived to give a compact and reliable account of his subject, and the work is one which will commend itself to all psychiatrists and specialists in mental defect.

[7] *Modern Infant-Feeding.* By Bernard Myers, C.M.G., M.D.Edin., M.R.C.P. The Modern Treatment Series. London: J. Cape. 1930. (5 × 7¾, pp. 160. 5s. net.)

[8] *Improvised Equipment in the Home Care of the Sick.* By Lyla M. Olson, R.N. Philadelphia and London: W. B. Saunders Company. (4 × 7, pp. 109; 150 figures. 6s. net.)

[9] *Home Care of the Sick.* By Norma Selbert, R.N., B.S. Philadelphia and London: W. B. Saunders Company. 1929. (Fcap. 8vo, pp. 156, 4s. 6d. net.)

[10] *E. Merck's Annual Report.* Part III, 1929, and Part I, 1930. English edition. Darmstadt: E. Merck. (Demy 8vo, Part III, pp. 324-508; Part I, pp. 168, illustrated. Sent free of charge, postage paid, to any member of the medical profession on application.)

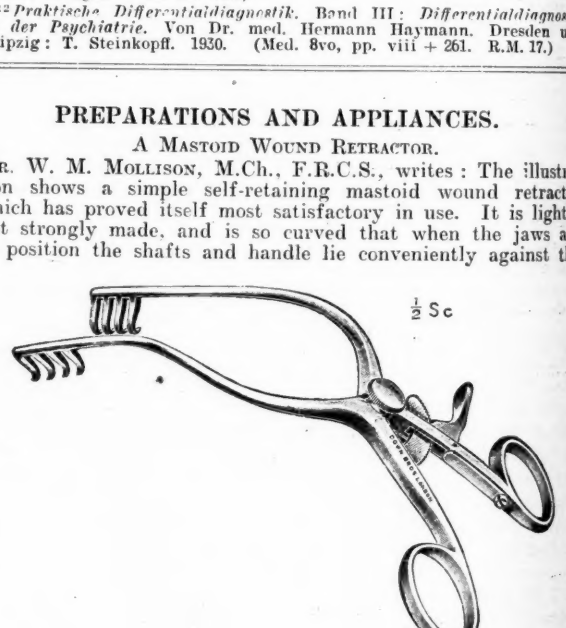
[11] *Aids to Zoology.* By Harry Lister, M.Sc., F.Z.S. Students' Aids Series. London: Baillière, Tindall and Cox. 1929. (F'cap. 8vo, pp. viii + 214; 29 figures. 3s. 6d. net.)

[12] *Praktische Differentialdiagnostik.* Band III: *Differentialdiagnostik in der Psychiatrie.* Von Dr. med. Hermann Haymann. Dresden und Leipzig: T. Steinkopff. 1930. (Med. 8vo, pp. viii + 261. R.M. 17.)

PREPARATIONS AND APPLIANCES.

A MASTOID WOUND RETRACTOR.

MR. W. M. MOLLISON, M.Ch., F.R.C.S., writes: The illustration shows a simple self-retaining mastoid wound retractor which has proved itself most satisfactory in use. It is lightly but strongly made, and is so curved that when the jaws are in position the shafts and handle lie conveniently against the



head of the patient out of the way. It is fitted with a cam ratchet, which maintains the jaws at any desired width with delicacy and rigidity.

The instrument, which can be taken apart at the joint, is made of stainless steel so as to withstand repeated sterilizations without damage. It was made to my design by Messrs. Down Bros., Ltd., 21 and 23, St. Thomas's Street.

AN OUTBREAK OF MINOR SMALL-POX IN LEICESTERSHIRE.

The prevalence of minor small-pox in Leicestershire during the past twelve months has afforded an excellent opportunity of observing its clinical and epidemiological features. It is hoped that, in the absence of a comprehensive literature, the following remarks concerning the type of the disease will prove of some help to those who may, without previous experience, be confronted with a case, or perhaps with a group of cases. Our experience has been that cases occurring for the first time in any one locality usually pass unrecognized.

General Characteristics of the Early Stage.

Incubation.—The incubation period is exceedingly variable. From my records of cases the commonest incubation period is approximately fourteen days. Two cases have occurred, however, in which the incubation period was only ten days, while in another case its duration was twenty-one days.

Infectivity.—The infectivity of minor small-pox is exceedingly interesting when compared with that of true small-pox. The infective potency appears to be very low. In several instances single cases have been observed in large unvaccinated households, the remainder of the family, though freely exposed during the period of highest infectivity—that is, while the rash is coming out—having all escaped. The most, and possibly the only, infectious period of minor small-pox is while the rash is developing; from our experience minor small-pox does not appear to be infectious during the prodromal stage, or after the rash has ceased to erupt.

Extension of the Infection.—The commonest line of spread appears to be among persons sharing the same bedroom, although one unvaccinated girl escaped infection in these circumstances. Another common mode of extension is courting by young couples; infection regularly spreads among these people if vaccination is refused, and is frequently responsible for a fresh outbreak in a new neighbourhood. A definite case of propagation by fomites has not come under our observation, though cases have been reported by some authorities.

Prodromal Stage.—This is usually the only period of the disease in which the patient complains. The sudden onset, great prostration, and rapid recovery before the appearance of the rash are the most significant features of this stage. About 90 per cent. of the patients suffer for a few days before the development of the rash; the remaining 10 per cent. may present no prodromal symptoms whatsoever, or on close interrogation give a history of malaise and headache, lasting several hours, about four days before the appearance of the eruption. The prodromal stage usually continues for forty-eight hours up to five days, the average being four days. The symptoms in order of frequency are frontal headache, lethargy and malaise, backache, feverishness with perspiration, vague pains in the legs, nausea with occasional vomiting (the latter being invariably present in children), and hoarseness. The common clinical history is as follows. A man ceases work at midday with frontal headache and malaise. The next day is spent in bed, with headache, fever, giddiness, and generalized pains—a typical clinical picture of influenza. On the following day he feels better, gets up, and returns to work on the fourth or fifth day, the rash appearing on one of these days. On no occasion has a prodromal rash been seen, although an erythema sometimes occurs on the flanks of fair people during the prodromal stage.

The Rash.

The rash begins as small macules, which rapidly become papules within twenty-four hours. The papules are circular, and turn into turbid vesicles on the second or third day of the eruption. These vesicles, which are again invariably circular (the most important point in diagnosis), enlarge on the fourth or fifth day and become typically pustular. Throughout the whole evolution of the rash the eruption is always circular. The lesions are deeply situated, and may give a shotty feel; umbilication occurs only in the bigger pustules. The size of the lesions is variable; as a whole, they are considerably smaller than those presented in true small-pox, measuring from one-tenth to two-fifths of an inch in diameter. In minor small-pox the eruption frequently occurs in crops, and so closely resembles chicken-pox; the crops may appear any time during the first week.

The distribution of the rash is of extreme importance. The eruption usually begins round the lower edges of the cartilages of the nose, along the supraorbital ridges, and over the malar prominences. The concentration of the rash on the face is variable, and only three or four lesions may occur; sometimes several hundred are present, but most commonly the papules number from ten to thirty. The rash next develops on the shoulders and back, a common site being along the vertebral border of the scapulae. It is most important to note the presence of the eruption on the forearms. Though the papules appear more densely on the extensor surface, they are usually found over the flexor muscles and over the brachioradialis. An invaluable aid in diagnosis is to find papules on the wrist and hand. In this situation the lesions are commonly seen in the palm and on the dorsum of the fingers and hand; other favourite sites are the thenar eminence, around callosities, and over sites of irritation. The upper arm is less densely infected than the forearm.

The appearance of the rash on the lower extremities somewhat resembles that on the upper extremities. Papules are usually found on the buttocks. The lateral aspects of the knees are sites of relative density. The soles and malleoli are also sites which are frequently affected.

The occurrence of a palate rash is sometimes observed, and papules may be occasionally seen at the junction of the hard and soft palates at the very onset of the eruption; this is of great assistance in diagnosis. On one occasion a contact whose symptoms had been similar to those of the prodromal stage of small-pox was immediately isolated as suffering from small-pox on the development of a papule on the palate and a macule on the face.

As in true small-pox, the occurrence of the eruption on the abdomen, in the axillae, and in the folds of the groin is very rarely seen. The reason for this is that these situations are less exposed to irritation than are such places as the extensor surface of the forearms and the lateral aspects of the knees; in these areas the rash is usually concentrated. On two occasions, however, in children under the age of 12 months, we have seen profuse eruptions of small-pox papules in the groins, on the perineum, and over the lower abdomen. The natural explanation is that these situations are exposed to considerable irritation in infants.

A noteworthy point has been the sudden way in which the incidence of small-pox decreased during the month of June. There has also been a definite modification in the eruption, which on three occasions aborted in the papular stage; to use a colleague's definition, "it almost appears to have reached vanishing point."

Several cases of small-pox *sine eruptione* occurred. One unvaccinated male adult presented a typical syndrome of prodromal symptoms fifteen days after his sister had been removed to hospital suffering from small-pox. This patient complained of lethargy, frontal headaches, severe perspiration, and pains in the back. A close watch was maintained, but no eruption occurred.

Differential Diagnosis.

Apart from an epidemic, or at least some preceding cases, the prodromal stage of small-pox is hardly ever recognized. In an epidemic it is frequently confused with influenza, lumbago, mild gastro-intestinal disturbances associated with slight fever, and toxaemia. Recognition of the prodromal stage is a signal for the prompt vaccination of contacts where possible, and for the removal of the patient to hospital when the rash appears.

The small-pox rash is most frequently confused with acne, chicken-pox, and Bockhart's impetigo. Apart from a chicken-pox epidemic occurring simultaneously, the most common and difficult point arising in diagnosis is the differentiation of minor small-pox from acne in the pustular stage. In such a case the eruption is discrete and circular, often on the face and back, and so resembles minor small-pox in the early pustular stage; on further investigation of the distribution, however, no pustules are found on the extremities, there is no history of prodromal symptoms, excessive scarring of old acne is present, and there is often the history of similar pustules for some weeks.

Difficulty is presented in distinguishing severe chicken-pox from minor small-pox in young adults. This primarily arises before the appearance of the eruption, severe chicken-pox being frequently preceded by symptoms resembling those of the prodromal stage of minor small-pox, and lasting up to forty-eight hours. A woman, aged 28, who had had prodromal symptoms, was covered with pocks over the face, back, and arms—a similar distribution to that of small-pox. On close examination with a lens, however, every pustule was seen to be slightly irregular in outline, not one in many hundreds being found uniformly circular, as is the almost invariable rule in minor small-pox. The lesions presented a knotty feel on the forearms, a characteristic often seen in chicken-pox as well as in small-pox. Another case of chicken-pox recently observed presented no less than six lesions on the plantar surface of the right foot and eight on the dorsum. These pustules occurred in an otherwise typical but fairly severe case of chicken-pox, diagnosed by the polymorphic appearance of the eruption and its distribution.

Vaccination.

In a total of 625 patients suffering from small-pox there has not been a single one who has been vaccinated within thirty-seven years (except contacts vaccinated late after exposure to the disease). This is a most instructive and interesting observation. In order to discount its value it has been suggested that in Leicestershire, being the county with the lowest percentage of

vaccinated population, the vaccinated have not been exposed to infection. This is a fallacy, for here, as elsewhere, we have a large population which was vaccinated during the war. Not one of these men has contracted small-pox, though many, including not a few whose wives contracted the disease, were as freely exposed to infection as were doctors and nurses. Forty extensions of the present outbreak of small-pox consisted of a single case in a fresh neighbourhood. In seventeen of these cases every house contact (three on an average) was traced and vaccinated; thanks to these precautions, each outbreak was limited to the one initial case. No case has occurred in any contact vaccinated within seventy-two hours of exposure to infection—that is, to an eruption; late vaccinations, while sometimes effective, were unreliable, although the cases were usually modified to such an extent that they would frequently have been missed had it not been for careful medical inspection for twenty-one days after exposure to infection.

The classification of 570 cases of small-pox admitted to the Snarestone Small-pox Hospital was as follows: unvaccinated, 450; vaccinated in infancy, 63; and vaccinated late as contacts, 57. Of those vaccinated in infancy the highest age was 75 years, the lowest 38 years, the average age being 51 years.

STATISTICS RELATING TO SEVERITY.

The following classification refers to the eruption in 560 cases:

Mild cases	243 (43.5 per cent.)
Discrete cases	243 (43.5 per cent.)
Very mild cases	68 (12 per cent.)
Confluent cases	6 (1 per cent.)

The eruption of 53 patients vaccinated as contacts, and later developing minor small-pox, was classified as follows:

Mild cases	22 (42 per cent.)
Very mild cases	16 (30 per cent.)
Discrete cases	15 (28 per cent.)

From these figures it will be observed that of the total admissions to hospital 12 per cent. had a very mild attack, compared with 30 per cent. in those vaccinated late as contacts.

Although vaccination, more than two or at the most three days after the first exposure to infection, could not be relied upon as protection for any single individual, it has been our practice to advise it in all infected households, for in the event of one or more of a family developing the disease the remainder would then enjoy absolute immunity, and the house would be given its clearance.

I take this opportunity to express my indebtedness to Dr. J. A. Fairer, medical officer of health for Leicestershire, for his permission to publish these notes, and also to Dr. J. E. O'Connor for his invaluable assistance in many difficult diagnoses.

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Assistant Medical Officer for Small-pox, Leicestershire.

MEDICAL EDUCATION IN INDIA.

[FROM A CORRESPONDENT.]

THE reference in the *British Medical Journal* of July 5th (p. 38) to the conference called by the Government of India on June 23rd and 24th to consider the maintenance of adequate standards in provincial institutions for medical education is of great interest. The *Times* correspondent states that there was a unanimous agreement between the representatives of the provincial Governments and representatives of the Indian universities on the desirability of establishing an All-India Medical Council to ensure proper standards and qualifications. The next step is for the Government of India to enact legislation. A bill is to be prepared forthwith, and the local Governments are to be consulted on the details in time for submission to the Central Legislature at the Delhi session early in 1931. The indications are that we may look forward to the organization of a central council. Such a council has long been needed in India, wherein medical education on an All-India basis may be discussed, and the differing standards of qualifications, in the separate and widely separated provincial institutions, may be studied and a system of registration adopted to meet the requirements of All-India.

The history of former medical bills prepared by private members of the Legislature and submitted to provincial Governments for opinion has shown how many diverse problems appear and call for solution; and all the bills hitherto considered have had to be dropped. There will, of course, be difficulties in the present attempt, and perhaps delays. The Medical Acts in force in this country were for many years under discussion before they reached the Statute Book. And in India, though much ground has been covered by previous discussions, new problems are appearing with the approach of responsible government and the political developments under the new constitution. It is an all-important step in advance now to be undertaken, and all who are concerned with medical education, and appreciate the incalculable benefits that may accrue to the public health of India, will wish the new movement every success, and watch its progress with sympathy and understanding. A review of the present position of medical education in India will probably prove essential as a preliminary step. Perhaps this has already been undertaken. A detailed record is required as a basis of legislation, and will be of great assistance to the lay members of the Legislature when the bill comes under discussion.

There is no mention in the telegrams from India as to whether the object, or one of the objects, of the proposed council will be to arrange that the qualifications granted in India may, by agreement with the General Medical Council in Great Britain, become registrable in this country. It seems probable that this may be one of the objects, for a further resolution of the conference expressed regret at the decision of the General Medical Council to withdraw the conditional recognition of medical degrees granted by the Universities of Bombay, Calcutta, Lucknow, and the Punjab. This decision gave rise at the time to expressions of indignation in India, and to severe and violent denunciations in the press. But as similar views have been voiced during the last three or four years, and more especially in the Legislative Assembly in 1929, when the conditions under which these degrees could remain registrable in Great Britain were debated, it is possible that the extreme views were influenced by political and racial feeling, as well as by lack of acquaintance with the facts. The views may be moderated as information spreads and political feeling becomes less acute.

Thoughtful members of the medical profession are gradually freeing from political entanglements the question of improving medical education, as can be surmised from the reasonable expression of regret in the wording of the resolution referred to. This resolution mentions only four* of the eight Indian universities granting medical degrees, as the degrees granted at Patna, Andhra, and Rangoon Universities have never been registrable in Great Britain. They are all registrable in India, as are certain diplomas granted by local licensing bodies. The "licensed medical practitioners"—a numerous class—are also registrable in India, though the courses of instruction and the examinations are not recognized for degrees given by any of the Indian universities.

The problems concerning recognition and registration of qualifications which represent widely different standards of education will call for much patient study and careful consideration by the Indian council now about to be constituted. It would seem that sooner or later this body will find itself the authority for the maintenance of an All-India register of persons holding qualifications granted in India or practising in India. The procedure, requirements, and terms for admission to the Indian register of recognized qualifications granted outside India will fall to be devised in due course. Certain requirements will then be laid down for registration in India, just as certain requirements are laid down for registration in Great Britain. And when this is done there should be no lack of opportunity for the Indian authorities, should they so desire, to raise the question of recognition of Indian degrees with the Council in Great Britain.

The lapse in the recognition of some of the Indian degrees in Great Britain was due to the non-fulfilment by India of the present requirements deemed necessary for admission to the British *Register*. On this question many correspondents to the press in India have laboured under a complete misapprehension, and have in effect claimed the right of unconditional admission of Indian graduates to the British *Medical Register*. The requirements for admission to the British *Register* rest with the authorities in Great Britain, and in the same way the requirements for admission to the Indian register will, when a responsible and authoritative council is constituted in India, rest with the authorities in India.

*Madras is not referred to in the telegram.

British Medical Journal.

SATURDAY, AUGUST 30TH, 1930.

THE PRESIDENTIAL ADDRESS.

THE welcome which the British Medical Association is now receiving in Canada, and especially in Winnipeg, is fully expressed in the presidential address by Professor Harvey Smith, which we have the pleasure of printing this week. The keynote of that address is the "earnest hope that this meeting in Canada will serve to strengthen between the Dominion, the Mother Country, and the various other units of the Empire the ties of scientific fellowship, fraternal good will, and patriotic unity," together with an acknowledgement of the "mutual understanding and cordiality" existing between those units and the United States of America. The President declares that "the bonds of Empire are growing stronger, and there is increasing evidence that Canada shares with the Mother Country a common outlook and a common destiny," and that, moreover, "Canada, in growing strong and prosperous and confident, has become increasingly capable of fulfilling the great duty of interpreting the British Empire to the United States."

A gathering which can in some degree help to forward these wide purposes, and is designed to advance them greatly in the sphere of medicine, is indeed a memorable one. The previous meetings of the British Medical Association in Canada—that in Montreal in 1897 and that in Toronto in 1906—were remarkable, but the present meeting is even more so. As the President tells us, "a prophecy made in the 1860's, before the Red became a Canadian river, and when Western Canada was a wilderness, that such a gathering as the present would be possible on the banks of the Red in 1930," would have been regarded as quite visionary. Yet so rapid has been the development that "we have still with us in Winnipeg several residents who are survivors from the era before Manitoba entered the Confederation as the fifth of the nine provinces of to-day. They remember when there was still to be seen crossing the area now within the city an old trail along which the buffalo used to travel to a drinking-place on the bank of the Red River. They remember the festival known as the White Dog Feast, for which the Indians used to assemble every summer. That festival was held for the last time on Point Douglas, which is within the city of Winnipeg, in June, 1873. In performing the elaborate ceremonial at that festival the medicine men officiated, but more as priests than as physicians." There is thus a reminder of the progress of medicine as well as of the development of Canada. Professor Harvey Smith recalls that the first hospital in Canada was the Hôtel-Dieu in Quebec, founded in 1639.

It is natural to think first of the advance of medicine as a science and as an art or craft, and of the education by means of which this science and art has been extended and made known. In these respects the President tells us that "Canada regards Great Britain as its fountain head." It has to be confessed that, if not in the material and in the excellence, yet in the organization of its post-graduate teaching, this country has compared unfavourably with certain centres on the continent of Europe and in the United States, and that the President's reproach in this regard is justified. There has been much, perhaps unavoidable, delay in making good these deficiencies of organization; but it may now be confidently expected that in the early future there will be in London, by the co-operation of the Government, the London County Council, the University of London, and the clinical and teaching staffs of the schools of medicine, well-organized post-graduate facilities second to none elsewhere. Practitioners from Canada, as well as those from the other oversea Dominions and elsewhere, may rest assured that every endeavour will be made to meet their needs and their conveniences, and to make them welcome.

Professor Harvey Smith has some wise words to say on medicine in its more social aspects. He tells us that "the economic organization of medicine has not kept pace with its scientific progress," and says: "Conditions of practice have been changed vitally, in method and in outlook, by the prodigious growth in medical knowledge, and the keener appreciation, both of the public and of our profession, of the right of citizens to good health and skilled medical care. . . . A prolific source of criticism and of dissatisfaction arises from the failure of our profession to provide competent service to the various sections of the community under a financial plan that will meet the needs of every class of citizen." He points out that if the medical profession does not itself make this provision the State will be driven to do so, and may do it on lines which the profession would not fully approve. He draws attention to certain movements in this direction in British Columbia, in Alberta, in Saskatchewan, and in other parts of the Dominion, and to the fact that "both the Canadian Medical Association and the Department of Pensions and National Health at Ottawa are making a study of medical care and its cost, with a view to submitting constructive recommendations at a later date." In his judgement there is only one possible solution—"voluntary health insurance, instituted, organized, and controlled by the medical profession, and widely applied," and he lays down the principle that "the field of public health must and should be the interest of Government, but private practice must remain in the hands of the individual physician if the public is to receive the highest and best type of medical care." He refers in this connexion both to the National Health Insurance Acts of this country and to the proposals for a general medical service for the nation recently adopted by the British Medical Association.

It is clear that the problems to which these observations refer, and which these Acts and proposals are intended to meet, though fundamentally similar, are not identical in the two countries. Nevertheless, experience in the one should not be without its lessons for the other. The differences are evident in that section of the address in which the President touches on the question of specialism in medicine and the desirability of its statutory definition and regulation. The need for such regulation is not felt in this country to the same extent or in the same way as in Canada; nor would the profession here, in present conditions, view with approval such legislation with regard thereto as has recently been enacted in the Province of Alberta, and which the President himself regards, from his point of view and in the circumstances of Western Canada, as an "excellent lead." But "the science and the art of medicine are not circumscribed by any geographical boundaries. They belong to humanity." There is no doubt that the Annual Meeting of the British Medical Association in Winnipeg

will be found to have advanced medical science, and to have helped to a clearer conception and more adequate solution of the hygienic and social problems to which the contribution of medicine should be paramount. The presidential address of Professor Harvey Smith will not be least among its valuable features. We should like to accord to our Canadian brethren, and to the affiliated Canadian Medical Association, our thanks for their most hospitable welcome.

OUR CANADIAN SUPPLEMENT.

Throughout this week the British Medical Association has been holding its ninety-eighth Annual Meeting at Winnipeg in conjunction with the sixty-first Annual Meeting of the Canadian Medical Association. In order to commemorate this event we publish with our present issue a special *Canadian Supplement*. Its contents include Professor Harvey Smith's presidential address to the Association on Medicine in Canada, to which reference is made above; the full text of Lord Moynihan's eloquent Listerian Oration; and three of the clinical addresses which the local executive invited leaders of the profession from these islands to deliver at special afternoon sessions in the Winter Club at Winnipeg. The subject of Sir Lenthal Cheatle's address is the primary tumour in carcinoma of the breast; Sir William de Courcy Wheeler discusses the significance of surgical recoil following visceral decompression; and Professor W. E. Dixon returns to the problem of drug addiction, to which he has devoted much attention for years past. Exigencies of space and time prevent us from giving any detailed account this week of the proceedings at Winnipeg, other than the note on page 329, but brief cabled messages have already assured us of the success of the Annual Meeting on its social and scientific sides. We hope that the *Canadian Supplement* will be read for its intrinsic interest by members of the Association at large, and that those who have taken part in the Winnipeg Meeting of 1930 will value it as a memento.

CONVENTION NUMBER OF THE "CANADIAN MEDICAL ASSOCIATION JOURNAL."

The August issue of the *Canadian Medical Association Journal* is issued in the form of a special number devoted to the Meeting at Winnipeg of the British and Canadian Medical Associations. A frontispiece reproduces photographs of the three presidents concerned—namely, Professor A. H. Burgess, president of the British Medical Association; Dr. A. T. Bazin of Montreal, president of the Canadian Medical Association; and Professor W. Harvey Smith, president-elect of the two Associations. This number of the Canadian Journal opens with a "word of welcome" to visitors from overseas and the United States of America. It is recalled that the first Meeting of the British Medical Association in Canada was held in 1897 in Montreal, "the commercial metropolis . . . the tolerant home of two diverse yet complementary national civilizations." The second Meeting took place in 1906 in Toronto, "the Queen City, the friend of literature, art, and music . . . the stronghold of the more purely British tradition." The third Meeting, now in progress, is experiencing the hospitality of Winnipeg, "the exponent of the enterprise, resourcefulness, and optimism of the breezy West." This word of welcome contains a significant sentence: "Canada is grown-up now, and is conscious of a new life and a broader outlook," a sentiment which represents also the state of affairs as regards the profession of medicine in the British Empire and the position of the British Medical Association. Reference is made to the honourable place taken in the advance of science by leaders of Canadian medicine, as well as by the rank and file. Among the editorial notes is a reference to the *Book of Canada*, a volume of some 250 pages, worthily presenting life and work in that Dominion, and reflecting great credit on Professor Chester Martin and the committee associated with him. An editorial article, signed by Dr. A. Grant Fleming, on the proposals of the British Medical Association for a general medical service for the nation, is followed by a paper by Dr. W. H. Hattie, in which the probable future of medicine is contemplated as "a principal factor in making man's life really worth while." Among the numerous clinical contributions special topical interest attaches to a discussion by Dr. M. R. Bow, Deputy Minister of Health for Alberta, of maternal mortality as a public health problem. Dr. A. T. Bazin discusses elsewhere in the issue the surgical problems presented by the diabetic patient, and other topics dealt with include: insulin; pitfalls in the clinical application and interpretation of the basal metabolic rate; the surgical treatment of tuberculous empyema; the living suture operation in ventral and inguinal hernia; health insurance in British Columbia; diphtheria toxoid; the mechanism of cancer development; and the radical treatment of traumatic epilepsy. In conclusion may be quoted some of the final sentences of the preliminary word of welcome. "Not the least of the benefits to be derived from a meeting such as this in Winnipeg is that our problems will be discussed formally and informally, on the platform, on the links, and amound the festive board, from different angles. . . . Much may be expected from this interchange of ideas. Englishmen, Scotsmen, Welshmen, Irishmen, Australians, New Zealanders, Canadians, are meeting shortly in the centre of Canada. The sense of brotherhood which already binds us together as members of one great Empire will inevitably be strengthened by the association, by the struggle towards our common goal, and the realization of our common successes. Again, a welcome to all."

BRITISH ASSOCIATION IN BRISTOL.

The British Association for the Advancement of Science meets this year in Bristol from September 3rd to 10th, under the presidency of Professor F. O. Bower. Information about the Sections has been given already in the *British Medical Journal* (May 17th, p. 917). The two Sections of most direct interest to the medical profession are those of physiology and psychology. In the first of these Professor H. S. Raper has chosen for the subject of his presidential address "Synthetic activities of the cell"; this will be delivered on Thursday, September 4th, and will be followed by a discussion. Other subjects which will be dealt with in this Section are: pseudo-isochromatism and the detection of colour-blindness; the blood groups and their inheritance; the removal of lactic acid after exercise in the mammal; quantitative aspects of the action of drugs; the factor concerned in diabetic coma; the function of carbon dioxide; and some unpublished work on the heart. A joint meeting of the two Sections will be held on Monday, September 8th, to discuss the question: In what sense can we speak of primary colours? Professor C. W. Valentine, president of the Section of Psychology, will deliver his address on Friday, September 5th, taking for his subject "The foundations of child psychology." For the previous day a discussion has been arranged on certain psychological problems of adolescence, including the following topics: variations in the emotional development of normal adolescents; adaptation in youth as illustrated by the difficulties of the mental defective; adolescent modes of thinking; and the adolescence of the young wage-earner. Other points of psychological interest which will receive

attention during this meeting of the British Association are: some effects of low-frequency vibration on body and mind; outstanding features of the "circular type" of character; the relation between thought and fantasy in young children; the mental processes involved in learning a foreign language; the place of industrial psychology in a university city; psychological factors in peripheral vision; the psycho-physics of desire; perseveration and the introvert; the interest to the psychologist of conditioned reflexes; and psychological analogues of the conditioned reflex. In the Chemical Section the presidential address will be delivered by Professor G. T. Morgan on "A State experiment in chemical research." A paper will be read by Sir William Pope, who will also take part in a discussion on the present position of the British dyestuff industry. A comprehensive discussion on chemotherapy will include the application of arsenicals to tropical medicine and the mechanism of their action. In the Zoological Section the presidential address will be delivered by Dr. W. T. Calman, who will consider the taxonomic outlook in zoology, and Professor F. A. E. Crew will read a paper on the effects of density on a mouse population. Other subjects to be dealt with in this Section include: the phylogeny of the placenta; evolution of the primates; and the musculature for opening and closing the mouth in vertebrates. A wide choice of excursions has been arranged for delegates.

TREATMENT OF PNEUMONIA WITH VITAMIN A.

THE investigations of Mellanby and Green of the value of vitamin A as an anti-infective factor—above all, their application of the results obtained in the course of animal experiment to the treatment of a series of cases of puerperal sepsis—have naturally directed the attention of a number of observers to the possibility of treating other infections by the same agent. It may be recalled that in a paper published in the *British Medical Journal* of October 20th, 1928 (p. 691), Mellanby and Green recorded experiments by which they had shown that whereas animals fed on a vitamin A-free but otherwise adequate diet died from infective and pyogenic conditions, control animals receiving this accessory food factor remained in good health; animals which had developed infective lesions often recovered completely if they were given vitamin A abundantly and in good time. Applying these findings to human infections (*Journal*, June 1st, 1929, p. 984), they treated five cases of puerperal septicaemia due to *Streptococcus haemolyticus* (the organism in each case being isolated from the blood), and the results—namely, recovery in every case—were in such marked contrast to those previously obtained at the same hospital in the treatment of cases of puerperal septicaemia that there seemed good reason for believing that the recovery could be attributed to the treatment they had administered. An attempt to apply similar treatment to a series of cases of pneumonia in native mine labourers is recorded by Drs. S. Donaldson and J. Tasker in the *Proceedings of the Transvaal Mine Medical Officers' Association* for February and March, 1930. During the period August, 1929, to February, 1930, inclusive they treated 299 cases of uncomplicated lobar and bronchial pneumonia, adopting ordinary routine methods in 100 cases, treatment by means of ox liver in 99 cases, and treatment by means of concentrated vitamin A preparations in 100 cases. Patients were placed in one or other of these three groups strictly in rotation, and no attempt was made to select cases for treatment by any of the methods adopted. The administration of massive doses of vitamin A was maintained in each case for two days following the fall of temperature to normal, and in this series the case mortality was 8 per cent.; in the control cases treated by ordinary routine methods the mortality was 13 per cent.; and in the cases treated by ox liver it was 9.09 per cent. Very slight differences between the three groups were found in the average duration of supernormal temperature per case and in the average duration of persistence of physical signs; but there was a striking contrast between the incidence of cases showing delayed resolution in each group, the number in the control group being 17, in the liver group 7, and in the vitamin A preparations group 12. The authors of the paper admit freely that pneumonia is so varying in its clinical aspects and mortality that they would not be justified in drawing any far-reaching conclusions from their comparitively small series. They throw out, however, the interesting suggestion that if, as is probably the case with vitamin C, a depleted reserve in the body must be re-established before the massive doses of vitamin A can exercise a beneficial effect, it is possible that in a disease like pneumonia, rapid in onset and course, time is too limited for the necessary reserve to be built up, and very good results may therefore not be hoped for.

THE TRAFFIC IN DANGEROUS DRUGS.

THE Permanent Central Opium Board has been in session for the sixth time in pursuance of its duty to watch continously the course of international trade in dangerous drugs, and to ascertain whether excessive stocks have accumulated in any country in such a way as to suggest the possibility of illicit traffic. The recent arrival and disposal of 250,000 lb. of opium in China will doubtless engage the attention of the Board, the chairman of which declared "there is only one way to stop the illicit traffic, and that is to stop the surplus of drugs that is being produced throughout the world"; a steamer shipped this contraband cargo at Bushire. By the provisions of The Hague International Opium Convention of 1912 statistical information as regards the trade in raw opium, prepared opium, morphine, cocaine, and their preparations was to be furnished in detail, as expeditiously as possible, by the contracting Powers. The Geneva Convention of 1925, which in the opinion of some strengthened and in the opinion of others in some respects weakened The Hague Convention, similarly required such information to be furnished to the Central Board and to the contracting Powers. Thirty-four Powers have now thus bound themselves to supply the statistical information required, under one or other of the foregoing conventions. Turkey and Persia, both large producing countries, have not hitherto deposited their ratifications, while China and the United States, it will be remembered, withdrew from the Geneva conferences which led up to the Convention of 1925. China, after ridding herself of opium before the civil war, has again become a large producing country; the efforts of the Nanking Government and the Young China Party are unable to overcome the action of the military provincial governors in fostering this profitable industry. The United States, which initiated the Shanghai Opium Commission of 1909 and the three Hague conferences of 1911-12, 1913, and 1914, and remains bound by the conventions drafted by those conferences, is no party to the Geneva Convention of 1925. The reason of that abstention was that by this latter treaty "the American principle for a limitation of production to medical and scientific purposes has not been included as a contractual obligation," as the chairman of the conference frankly admitted. It is nevertheless interesting to note, as pointed out by Mr. Alec Wilson in his *World Peace and American Policy*, that it was the deep interest which the United States took in the drug traffic that first led to direct contact between Washington and Geneva after America's refusal to join the League of Nations, a contact which has become closer year by year. The comparative non-success of the League in grappling with the enormous illicit traffic

in dangerous drugs serves to emphasize the necessity for a policy of limitation of production to medical and legitimate purposes, as advocated in these columns for many years, and approved by the Assembly of the League of Nations at its last meeting. How such limitation is to be secured by international co-operation, whether by a method of "rationing," or a "scheme of stipulated supplies" as approved by some Governments but not favoured by the Advisory Committee at Geneva, or on some other principle, will doubtless engage the consideration of the Permanent Central Control Board.

INTERNATIONAL CAMPAIGN AGAINST TRACHOMA.

AT the thirteenth International Congress of Ophthalmology, held at Amsterdam last year, it was resolved to found an International Anti-Trachoma Organization. This body has now been formed at Geneva, where the preliminary arrangements were recently concluded. The sessions, which took place in the Palace of the League of Nations, were attended by forty delegates representing twenty-one States. Professor Emil de Grósz, who presided, was elected president of the organization for five years, and Mr. A. F. MacCallan, C.B.E., F.R.C.S., of London was elected a vice-president. The secretary-general is Dr. Wibaut of Amsterdam. Other members will include representatives of the Hygiene Committee of the League of Nations, the Association Internationale contre la Cécité, and of the International Ophthalmological Council. Among the aims of the organization are: (1) to further co-operation for the prevention of trachoma, both nationally and internationally; (2) to support and propagate all measures directed against the disease; (3) to organize conferences with the object of elucidating the problems of its etiology, diagnosis, treatment, extension, and prevention, of discussing associated scientific and social questions, and of preparing necessary legislation. Reference was made to a special law that had been passed in Hungary as early as 1886 initiating a campaign against trachoma, and the opinion was expressed that such precautionary measures should be advocated in all countries exposed to risk. Japan was reported to have established a thousand centres for the treatment of half a million patients suffering from the disease. About a thousand specially trained doctors were stated to be engaged in this service, which had been estimated to cost the country half a million yen every year. At one of the sittings an address was delivered by Dr. Olitsky of New York on the significance of the bacillus discovered by Noguchi, and a demonstration was given by Mr. M. S. Mayou, F.R.C.S., of London. The League of Nations has issued a circular letter requesting its members to support the work of the organization. Professor Gourfein entertained the delegates to a luncheon at his Geneva clinic, and a dinner was arranged by M. André Patry, a Geneva oculist.

FOETAL GROWTH.

THE growth of the foetus, which forms the subject of an elaborate treatise recently published by Professors Scammon and Calkins,[1] may for merely descriptive purposes be studied by qualitative methods, the varying proportions exhibited by the component parts of the body during foetal development being ascertained by simple inspection. The obstetrician, however, requires a more accurate method, at least in connexion with the foetal head, and is forced to employ quantitative methods and exact measurements. The development of the body *in utero* also forms an important chapter in the biology of growth at a period when body changes are at their maximum; and, if the theory still holds that racial development is to some extent a reflex of embryonic development on a larger scale, the subject must be one of importance to the anthropologist. In this connexion a recent observation by Sir Arthur Keith, in reference to the relatively large cranial capacity of certain of the earliest prehistoric races and its reduction in later periods, is of interest. The opinion, he states, is gaining ground that the retention of infantile characters plays a part in the evolution of new human races. Scammon and Calkins's work deals with foetal growth from the third month, when all the organs have been laid down, onwards to the full term. It is based on thirty-five thousand determinations of seventy-one external dimensions of the body, the measurements being made on upwards of four hundred selected human foetuses. The analysis of the data collected is expressed in both graphical and numerical forms, and those who have unwisely neglected to familiarize themselves with mathematical reasoning may possibly not feel altogether at ease among the mathematical formulae. The conclusions of the research are, however, quite clear and comprehensible. The most important result of the work is the establishment of a new principle, that in general the linear growth of each individual part of the body takes place in uniform ratio during the foetal period, or, graphically expressed, that it is represented by a straight line. Presumably, each part has its particular and uniform rate of growth, so that the proportions of the various regions change during the foetal period, the lower limbs becoming relatively larger and the head relatively smaller. This newly recognized law is in complete harmony with the previously known "law of developmental direction" or "law of cephalo-caudal development," defined by Jackson and Scammon as the tendency of development (including growth and differentiation) to start in the head region and progress towards the caudal region; and similarly, in the transverse plane, to progress latero-ventrally in the trunk and proximo-distally in the limbs. It is interesting to note that the general features of this law were adumbrated in Aristotle's *De Animalia*. Scammon and Calkins have included a complete tabulation of the extensive data collected by them, together with the determination of exact formulae for the foetal body length according to age, and for the different external dimensions in relation to body length.

[1] *The Development and Growth of the External Dimensions of the Human Body in the Fetal Period.* By Richard E. Scammon and Leroy A. Calkins. Minneapolis: The University of Minnesota Press.

MOSQUITOS IN BRITAIN.

IT is well known that the presence of mosquitos is not a serious menace to human health in these islands. We have, it is true, no fewer than three species of anopheles, none of them very rare, and each one known to be a carrier of malaria in other countries; but, owing probably to conditions of temperature, locally acquired infection is a rarity. Occasional deaths occur from septicaemia consequent on the bites of mosquitos, but these events also are exceedingly unusual. We may say, then, that the British mosquitos should be considered as a nuisance rather than as a menace to health, and this is fortunate, for we have some twenty-six species indigenous to our country. Some of those which breed in ponds cause inconvenience, as anyone may experience who visits the public woodlands round London at this time of the year; but by far the greatest nuisance is occasioned by two species which breed only in salt marshes round our coast. The same varieties of mosquito, or their near relatives, have attracted a great deal of attention in parts of Canada, New England, and elsewhere, and it may be stated generally that the salt marsh mosquitos are distinguished by inflicting an unusually painful bite, by their diurnal activity, and by their very great range of flight. They travel in from the Essex marshes and bite people in the London docks, so that it is

not surprising that in America, that continent of wide spaces and great distances, they are reputed to travel as much as forty miles. So far as Great Britain is concerned, the control of the mosquito which breeds in salt marshes has been worked out and applied by Mr. J. F. Marshall of the British Mosquito Control Institute at Hayling Island. We understand that his home is on the island. But a few years ago it was customary for the residents to vacate their homes in July and August, and leave the island as far as possible to the mosquitos. Times have changed, the mosquitos have vanished, and the island is now populated at that season by holiday makers. In a pamphlet before us[1] Mr. Marshall discusses the organization of control. He shows that nothing effective can be done unless the particular species is identified; this is because different sorts of mosquito breed in different places, and it is idle to blame the domestic water butt if the insects are coming from a pond in a neighbouring wood. When the insect has been identified, its breeding-place may be located and abolished without great difficulty; for example, in the case of the salt marsh mosquito which breeds in brackish water that is not used by cattle, the mosquito larvae may be controlled by oiling the water or poisoning it with an appropriate dose of cresol. We commend the work of the British Mosquito Control Institute to medical officers of health, and others who are often asked for information which they are not always able to give. We can testify to the value of the advice which may be obtained there.

SUGAR DETERMINATION IN CONDENSED MILK.

A REPORT[2] by Dr. Monier-Williams, issued by the Ministry of Health, and entitled "The determination of sucrose, lactose, and invert sugar in sweetened condensed milk," will be of great interest to analysts, and to those concerned with questions of the standards of purity of manufactured foods. The booklet deals, primarily, with chemical methods. The problem of separating and estimating a mixture of carbohydrates is a difficult one; the measures taken by the author to surmount the difficulties are ingenious, and should prove helpful to other workers. Apart from purely technical matters, an interesting point which emerges is the significance of the presence of an appreciable amount of invert sugar in the milk. This, it appears, can be taken as an indication of dirty or inefficient conditions of manufacture, or of insanitary conditions at the source of milk supply. This fact should prove of the utmost value to those whose duty it is to see that proper precautions are observed alike by producers and manufacturers.

ROYAL MEDICAL BENEVOLENT FUND.

THE proceedings at the ninety-fourth annual meeting of the Royal Medical Benevolent Fund were reported in our issue of March 22nd (p. 561), and now the full record of the work done in 1929 has been issued to subscribers. Once again an earnest appeal is made to all members of the profession to support the Fund as generously as their means permit. Since 1836 nearly £300,000 has been expended by way of grants and annuities to medical practitioners or their families in distress. Grants are made only after careful inquiry, the amount depending on the needs of each case and on the total sum available at the moment. The income at the committee's disposal for the award of grants is derived wholly from subscriptions and donations, while annuities are paid out of the income from invested capital. More subscriptions mean more help to urgent cases of the kind with which our readers must be familiar from the pathetic notes supplied by the committee and published at intervals in these pages. Annuitants (numbering 119 last year) are chosen by the committee from the most necessitous of the grantees who have reached the age of 60; to extend this good work legacies are needed. The Guild, or Women's Branch, was formed twenty-one years ago to aid the Fund by obtaining further subscriptions and making the work better known, and by helping those beneficiaries of the Fund who are referred to it by the Case Committee. This help is given by means of grants for relief, maintenance, and education, gifts of clothing, home visits, and personal service. The education of children and their subsequent training to earn a livelihood are the Guild's special care. The address of the Fund is 11, Chandos Street, Cavendish Square, W.1, and of the Guild, Tavistock House North, Tavistock Square, W.C.1.

[1] Marshall, J. F.: *The Organization of Mosquito Control Work*. British Mosquito Control Institute, Hayling Island, Hants. 9d.

[2] Ministry of Health. Reports on Public Health and Medical Subjects. No. 57. London: H.M. Stationery Office. 1930. 6d. net.

THE EDUCATIONAL NUMBER, 1930.

OUR next issue, dated September 6th, will be the annual Educational Number of the *British Medical Journal*. Its contents, as in previous years, will include a full account of the requirements of the General Medical Council and of the universities and other licensing bodies in Great Britain and Ireland, as well as information about the opportunities offered by the various medical schools and other teaching institutions, and the fees charged by each. The details given have been revised and brought up to date by the authorities concerned. These sections, the object of which is to furnish a handy guide to intending students of medicine, are supplemented by articles intended for newly qualified practitioners on such matters as post-graduation study in Great Britain, the public health services, tropical medicine, psychological medicine, and the various special diplomas. In the sections dealing with the public services will be found a concise account of the present terms and conditions of service in the R.N.M.S., the R.A.M.C., the I.M.S., and the R.A.F.M.S., which the Representative Body of the British Medical Association has decided are satisfactory and such as can be commended to the notice of the younger members of our profession. The opening article for this year's Educational Number, entitled "A Review of the Medical Curriculum," has been written by Dr. H. R. Dean, professor of pathology in the University of Cambridge.

WE learn that the reception room in the Winnipeg Winter Club, where members registered on arrival, has been a busy centre from Monday morning onwards. Early on Tuesday the President-Elect opened the scientific and commercial exhibitions, both of which are housed there. Next came the Adjourned Annual General Meeting of the British Medical Association, preliminary business having been disposed of in London on July 22nd. After the ceremonial induction of Professor Harvey Smith as President for 1930-31 at the hands of Professor Arthur Burgess, the Premier and the Mayor made speeches of welcome, and delegates from this country and elsewhere were formally introduced to the President. Professor Harvey Smith then delivered his Presidential Address, of which the text appears in the opening pages of our special *Canadian Supplement*. At 3 o'clock the members assembled again and walked in procession to the Cenotaph, after which a religious service was held in the grounds of the Parliament Buildings. Tea in the Winter Club, a lacrosse match, and private dinner parties were followed by the President's reception, and dancing and music, in the Parliament Buildings. The opening meetings of the Scientific Sections on Wednesday, August 27th, were well attended, and much interest was shown in the discussions arranged. Up to Tuesday night the number of registrations was 2,900.

MEDICAL CONDITION OF THE CASUAL POOR.

REPORT OF THE DEPARTMENTAL COMMITTEE.

IN September, 1929, the Minister of Health appointed a departmental committee to consider the problems concerned in the relief of the casual poor, under the chairmanship of the Rev. L. R. Phelps, and this committee has now issued its report. Its terms of reference were "to inquire into the administration of the laws relating to the relief of the casual poor, and to make recommendations with special regard to the assistance of persons seeking work, and to persons suffering from physical or mental disability." Of the hundred pages of the publication fifty-one are devoted to the report and the recommendations, the remainder being utilized for appendices, the first fifteen pages of which are occupied by the reprinted history of vagrancy, contained in the report of the Committee on Vagrancy of 1904–5. Nearly thirty pages, however, are filled with the report of a special investigation made for the departmental committee by Dr. E. O. Lewis, inspector of the Board of Control.

It should be noted that the publication under review is limited to the consideration of the "casual poor" only, a casual poor person being defined by the Poor Law Act of 1930 as any destitute wayfarer or wanderer applying for or receiving (poor) relief. It does not include, consequently, the homeless poor who do not apply for relief. Of these "casuals" there have scarcely ever been less than nine thousand accommodated nightly during the past three years, and the average number may be put at twelve thousand. Dr. Lewis made a careful, though necessarily not an exhaustive examination, of a 5 per cent. sample of this population, the actual numbers being 542 men and 50 women, drawn from about an equal number of casual wards in industrial centres and in agricultural areas. The primary object of the inquiry was the investigation of abnormal mental conditions among those examined, though a considerable amount of information was gathered in regard to the physical and social conditions of those coming under observation.

Mental Deficiency.

Of the 592 casuals examined 93 were mental defectives (about 15.7 per cent.); if this percentage is applied to the total casual population of 12,000, it is estimated that there are nightly about 1,800 mental defectives in casual wards in England and Wales. These persons were all feeble-minded (none of them imbeciles or idiots), with an average mental age of 8 or 9. They were for the most part sub-normal in physique and poorly clad as compared with the ordinary casual, their clothing being torn and dirty, and their feet frequently showing sores from the lack of necessary attention. Taking those of higher mental grade than these defectives, the majority were still found to belong to the dull section of the community, although there were several of normal intelligence, and some even above the average, but these formed a small minority.

Of the whole group examined 32, or 5.4 per cent., were insane; of these 20 were suffering from senile dementia, 2 from dementia praecox, 4 were manic-depressives, 3 had a toxic psychosis, and 3 were paranoiacs. In addition to the mentally deficient and the psychotic, there were 34 (5.7 per cent. of the whole) who were psychoneurotic. The anxiety neurosis was the commonest form, but there were several cases of the psychasthenic type, and a few (for the most part women) hysteric, though the coincidence of chronic alcoholism in practically every one of these made it difficult to say whether the hysteria was dependent on an original mental instability or was mainly alcoholic. A diagnosis of chronic alcoholism was made in 75 cases altogether, including those just mentioned.

Other Morbid Conditions.

Affections of the circulatory system were found in 43 cases. Comparatively few respiratory and digestive diseases were detected, bronchitis being the most common, but 5 persons had symptoms of gastric or duodenal ulcer. Defects of vision were not uncommon, and the disability was, as a rule, imperfectly corrected by the glasses worn or possessed. There were 17 cases of hernia, 6 of hydrocele, and 2 of varicocele, the last two conditions being for the most part extensive owing to neglect of operations which had been proffered. The small number of cases of osteo-arthritis and of skin conditions was surprising.

Medical Recommendations.

The chief practical conclusion arrived at by Dr. Lewis, especially on a review of the mental conditions found, is that there is need for the periodical medical examination of all casuals. He emphasizes the point that medical practitioners who undertake these examinations should have a special knowledge of psychiatry and kindred studies, and be keenly interested in this branch of medicine. It is stated that the Mental Deficiency Committee estimates the incidence of mental defect in England and Wales to be about 8 per thousand of the population, whereas similar tests indicate about 15 per cent. in this group of casuals.

Dr. Lewis adds that in his experience the casuals he examined compared favourably with those men and women found frequently in the common lodging-houses of some provincial towns where there is lax supervision; he pleads for closer co-operation in the administration of casual wards and common lodging-houses.

Summary of General Recommendations.

In its general recommendations the committee envisages the continuing of the casual ward system for some years, though it looks forward to the time when the stopping of vagrancy at its sources may render them unnecessary. It recognizes that the taking over of the functions of the guardians by the county and county borough councils will make the task of dealing with the casual easier, but recommends that a further process of co-operation of authorities should be encouraged by the splitting up of the country into some dozen areas, under *ad hoc* vagrancy committees, with a special visitation officer in each area, a hostel and training centre for the reception of casuals desiring to come off the road, a medical staff, and an advisory committee linking up the various voluntary agencies with the local representatives of the Ministries of Health and Labour, the watch committee or standing joint committee, and the public assistance authorities.

Casual wards should be distributed along the main lines of vagrant traffic at intervals of about fifteen miles, and be separate from any other institution. They should be staffed with trained officers whose whole time would be devoted to the relief of casuals; in certain cases they might be assisted by part-time officers. Detention should continue for two nights, except in the case of those who carry "vacant tickets" and are being passed on quickly by employment exchanges in search of work. Every effort should be made to keep off the roads men who are fit and ready for work; their care should be the concern of the Ministry of Labour, and not of the vagrancy committees. Proper arrangements should be made for bathing, sleeping, cleansing, feeding, and work, along the lines already laid down by order, and maintained by the better authorities. It is reported, however, that "in a certain number of casual wards the conditions now existing are infamous and intolerable."

The committee adds: "With certain safeguards against the admission to casual wards of persons who could if they liked provide for themselves, a general raising of the standard of accommodation and treatment would not tend to attract men to a life of vagrancy, but would have the result of improving the self-respect of the casual population and making it easier for them to regain their proper places in the life and work of the community." Detention colonies should not be looked upon as the special province of vagrancy committees, but they should provide for the whole of the class which "needs something by way of compulsion to rehabilitate it."

Provision should be made for more systematic medical inspection; and while parliamentary powers would be required for the introduction of any complete system of registration of casuals, some steps might be taken to prepare a central register of those who frequent casual wards, with reference to their age (under 5, 14, and 25), to their degree of physical or mental fitness, and to the amount of assistance previously received from training courses.

Women casuals should be relieved in the main part of the Poor Law institution, and not in the casual ward; the work of women inspectors should be extended. A tribute is paid to the good work of the Salvation Army, the Church Army, the *Morning Post* Embankment Home, and similar agencies; it is suggested that their methods should be studied, and the best features be adapted to public institutions. The comment is made: "We should welcome the provision of similar homes in other parts of the country."

Co-operation between vagrancy committees, employment exchanges, and voluntary bodies, however important and even necessary they may be, will not result in satisfactory progress unless with full co-operation of the general public, who should be made to feel that the provision for the casual wayfarer was such as to render begging for food and shelter unnecessary and unjustifiable.

A STANDARD FOR THE ANTIRACHITIC VITAMIN D.

STATEMENT BY THE MEDICAL RESEARCH COUNCIL.

THE following statement has been sent to us by the Medical Research Council for publication.

The Medical Research Council's Committee on Accessory Food Factors has long attempted to find generally acceptable conventions for the quantitative record of the activities characteristic of the different accessory factors, or so-called "vitamins." As in other instances, any unit of activity based on the production of a stated degree of a biological effect, however carefully this may be defined, must be liable to wide variation with differences in the conditions under which the test is conducted. This is especially so in testing for a vitamin action, where the effect on which measurement is based is the correction of an abnormal condition produced by a deficient diet. The severity of the condition to be treated will vary with differences in the dieting and treatment of the experimental animals, as well as with racial and individual differences in the stocks. Other biological standards, such as those for serums and hormones, held by the Council's Department of Biological Standards, are based on stable standard materials, in terms of each of which a unit of activity is defined which is independent of the details of the biological method used in its measurement. Here a measurement of activity in units is made on a strictly comparative basis, with reference to the standard.

With regard to the antirachitic vitamin known as vitamin D, this necessity for a common material standard was recently emphasized in the following recommendation by the committee:

"Any unit or standard based directly on the response of the experimental young rats to administration of antirachitic material is unsatisfactory, owing to the disproportionate variation in the response to equal doses of apparently similar animals, when tested at different seasons of the year or bred in different laboratories. The vitamin D unit should rather be referred to a stated quantity of some standard antirachitic material, with which comparison can be made by any reliable biological method."

Standard Adopted by Pharmaceutical Society.

The discovery of the method of producing this vitamin artificially from ergosterol has led to its manufacture on a large scale, its issue in many forms for therapeutic use, and its addition to various types of food materials. The proper desire of manufacturers to use and to supply such preparations with a quantitative indication of activity has led to the appearance of several unofficial "units," mostly defined in terms of some biological effect, and having no clearly determined relation to one another. The need for a common basis of measurement is therefore accentuated, in this case, by an existing and growing confusion. One of the provisional units current in this country—namely, that adopted by the Pharmaceutical Society's Laboratories when reporting on the vitamin D content of materials submitted to them for assay—has, indeed, been based on a material standard consisting of an oily solution of irradiated ergosterol, supplied to them for this purpose by the National Institute for Medical Research. Only a small quantity of this material had been prepared, however, and sufficient data were not available to justify the assumption that it would have the stability necessary for a standard and allow the committee to recommend it for general use.

Establishment of a New Standard.

It was accordingly decided to arrange for the preparation by the National Institute of a similar solution, on a scale sufficient for its eventual distribution to the numerous laboratories or institutions likely to require it, and to organize an investigation of its properties by different experts working on behalf of the committee. A quantity of ergosterol from yeast, purified and dried by methods carefully recorded, was subjected, in an accurately made alcoholic solution, to irradiation with the rays from a mercury arc, the physical details of the procedure being measured and recorded with the greatest practicable accuracy. All conditions known to influence the amount of vitamin D formed should therefore be reproducible at any future date, or in any other laboratory, leaving only the final adjustment of a new standard to equivalence with this original one to be made on the basis of comparative biological assay. The irradiation products were carefully freed from alcohol, dissolved in pure, unadulterated olive oil, and the volume adjusted to produce a known concentration, in terms of ergosterol used. The solution was then placed, and its main bulk has since been kept, in the Institute's refrigerating chamber, at a temperature of −4° to 0° C.

Evidence of the stability of such a preparation, under different conditions and over a sufficiently long period, being of central importance for a decision as to its use as a standard, the investigations promoted by the committee have, of necessity, been of a corresponding length. The experimental results from the different contributing laboratories have recently been completed, and have now been carefully reviewed by the committee, which has stated its conclusion from them in the following terms:

"From these tests it appears that specimens of irradiated ergosterol, prepared in the manner described above, do retain their activity unchanged for two years if maintained at or below 0° C. If they are kept at room temperature loss of activity may occur."

Definition of Unit Activity.

The evidence of the different investigators being uniformly favourable as to the suitability of this solution in other respects for use as a standard in comparative biological measurement of vitamin D, the committee decided to recommend its adoption as a standard, and the definition of a unit in terms of it, and adopted the following resolutions:

(*a*) That the standard solution of irradiated ergosterol prepared and maintained by the National Institute for Medical Research be recommended for adoption as a standard for the comparative estimation of vitamin D.

(*b*) That the unit of vitamin D be defined as the antirachitic potency of a quantity of this preparation corresponding to 0.0001 mg. of the ergosterol used in its production.

(*c*) That either the *x*-ray method, the "line test," or chemical analysis of the bones of the experimental animals, be recommended for use in the estimation of vitamin D.

(*d*) That supplies of the standard material be made available for general distribution from the National Institute for Medical Research, Hampstead. As the supply is limited it is hoped that users will themselves prepare standard solutions of irradiated ergosterol for use in individual tests, retaining the National Institute's material for reference. It is important that all such standard materials be kept at temperatures not exceeding 0° C.

It may be mentioned that the unit recommended has the same value, in terms of the weight of the original ergosterol represented, as that used for some years past in the Pharmaceutical Society's laboratories, on the basis of the provisional standard solution supplied to them. The standard solution now recommended for general use cannot be assumed to be exactly equivalent to this, though comparative tests have not revealed a measurable difference. Apart from such difference as may exist, the unit now proposed will, therefore, correspond to one of those already current.

It is of convenient size, as representing the order of dose required for daily administration to a rat, to produce healing of rickets in a curative test; that is to say, the daily dose suitable for the conditions of a particular test will be neither a large multiple nor a small fraction of the unit proposed.

The committee mentions three biological methods of estimating antirachitic effect which it is able to recommend, although its recommendations on this matter are obviously not meant to be exclusive. It has mentioned the methods in which, from experience of its own investigations, it has confidence; but its statement is not intended to preclude the use of other biological methods that already exist, or of better ones that further investigation may produce, provided that in every case the test is based on a comparison with the fixed standard.

Distribution of Standard Solution.

As indicated in another of the committee's recommendations, the quantity of the standard solution available will not allow it to be circulated in large quantities. Its distribution will, of necessity, be limited to those institutions which have the staff and equipment needed for its accurate application in biological assay, including proper facilities for its preservation without loss of activity. Unless the number of institutions requiring it prove to be much greater than that to which other standards are distributed, it should be possible to supply samples once or twice a year to each regular recipient for some years to come, before the preparation of a new batch of the standard solution will be required. It is proposed to make the first issue about the end of September, and a memorandum giving details for the use of the standard will be sent with each first sample. It will greatly facilitate the completion of arrangements if applications from institutions wishing to receive the standard are made as early as possible, so that the department may be able to estimate the number of separate samples likely to be required for the first and subsequent issues. All such applications should be made to the director of the Department of Biological Standards, National Institute for Medical Research, Hampstead, London, N.W.3.

Ireland.

Obstetrics and Gynaecology in Dublin.

The August issue of the *Irish Journal of Medical Science* is of particular interest to obstetricians and gynaecologists, as has been the case with the corresponding numbers of this periodical in previous years, being largely devoted to the publication of the reports of three Dublin hospitals—namely, the Rotunda Hospital, the Coombe Hospital, and the National Maternity Hospital. Reference was made last week (p. 298) to the valuable report issued by the Master of the Coombe Hospital of the work carried on there during 1929. In his account of the progress of the Rotunda Hospital, the Master, Dr. Bethel Solomons, expresses the hope that the new wing will be completed early next year; there will then be available an additional operating theatre, the long needed increase of accommodation for the nursing staff, and a new story for the pathological laboratory. During the twelve months from November 1st, 1928, to October 31st, 1929, 2,382 women were admitted to the wards of this institution, of whom 2,034 were delivered; 1,805 women were delivered in their own homes. Certain tabular changes have been made in the present report as compared with those of previous years. Thus, a smaller statistical table relating to disproportion is substituted for the more extensive one hitherto compiled, and the Caesarean section table has been rearranged to distinguish three procedures—namely, the classical, the lower segment, and repeat operations. Only one case of ophthalmia neonatorum occurred during the year, and tribute is paid to the efficiency of the 1 per cent. solution of silver nitrate, which is applied as a routine prophylactic. Among fifty-seven oil and quinine inductions of labour there were two infantile deaths; these did not appear to be attributable to this procedure, which is regarded as being very safe. Difficulty is still experienced in persuading patients to attend the ante-natal clinic; it is suggested that in order to diminish maternal mortality it may be necessary to withhold maternity benefit in such cases, or to take some other similarly drastic step. The fact is emphasized that in the great majority of the cases dealt with in the Rotunda Hospital during the year there had been no ante-natal care. Disproportion cases numbered 108; they ended spontaneously in thirty-four instances, in version and delivery in seven, and in Caesarean section in thirty-five, while forceps were required on forty-seven occasions, and destructive operations on five. There were thirty-seven cases of marked inertia; this was nearly always treated on academic lines. Dr. Bethel Solomons continues to classify this condition as early and late, primary and secondary, believing that in this way simplicity in treatment is facilitated. In one case of inertia most satisfactory results followed the intrathecal injection of 1 c.cm. of stovaine. In the whole series of cases, forceps were applied on 138 occasions, an incidence of 6.7 per cent. The gynaecological side of the hospital was again very active, although it was necessary to close one of the large wards during the building of the new wing, extra beds being placed in the other wards. In spite of this diminution of the accommodation the number of admissions (748) was larger than ever, and the record for the hospital was again beaten; of this number 654 were operation cases. The Master of the National Maternity Hospital, Dr. Patrick J. McArdle, reports that during the twelve months April 1st, 1929, to March 31st, 1930, 961 patients were delivered in the wards and 614 in the maternity service. In the gynaecological department 371 operations were performed. There were 7,843 attendances at the dispensary, including ante- and post-natal maternity patients, and infants under one year of age; there was an increase of 1,657 patients over the total of the previous year. The morbidity rate in 961 intern patients (calculated by the standard of rise of temperature to 100° F. on any two occasions) was 3.01 per cent. The death rate in the hospital for acute septicaemia was 0.104 per cent. The number of cases of acute eclampsia seems to be diminishing, but the admission of cases of eclampsism is increasing, this being due to the larger number of patients now attending the ante-natal dispensary. Eclamptic patients are treated on conservative lines, the only operative procedure being delivery by forceps as soon as the os is dilated. The convulsions are controlled by the free use of morphine and chloroform, the colonic lavage being repeated if the fits recur. During the year fifty-nine patients were delivered by forceps, representing 6.1 per cent. of the total deliveries. It is still considered necessary to employ the Kielland forceps in cases of high transverse arrest of the vertex in flattened pelves, also in rotating persistent occipito-posterior, mento-posterior, and low transverse arrest of the vertex. This issue of the *Irish Journal of Medical Science* contains also a thoughtful account by Dr. F. W. Doyle of the employment of gas and oxygen anaesthesia in obstetrics. It is held that the results so far obtained are sufficiently encouraging to stimulate an interest in what appears to be an ideal anaesthetic and analgesic, from the point of view of the requirements of obstetrical work. Dr. Bethel Solomons reports a case of adenocarcinoma of the cervix in a nulliparous woman. Dr. R. E. Tottenham contributes a short account of obstetrical and gynaecological clinics in Vienna, Paris, Sweden, and Denmark.

Improvement of County Homes.

At the Public Health Conference in Dublin, Mr. A. P. Delany, local government inspector, read a paper on the improvement of the county home. He said that although certain enactments had been passed by the Irish Parliament before the Act of Union, the Poor Relief (Ireland) Act, 1838, which was modelled in all essentials on the English Poor Law Amendment Act, 1834, was the measure with which until quite recent years they had been familiar in Ireland. The number of unions formed at first was 130; these were increased in 1848 to 131, and in 1850 to 163. Between 1850 and the outbreak of the European

war in 1914 five unions were dissolved, and the areas which they served were added to adjoining unions. Of the remaining 158 separate unions, 131 were in the present area of the Saorstát. With the establishment of the Free State the workhouse disappeared, at any rate in name; it was now the county home. Mr. Delany feared that the change of name was the principal change that had occurred, and that the characteristics were largely unaltered. It could hardly be necessary to say that a county home should not continue the bad aspects of the workhouse, which it replaced; it should not be a compound where the poor were herded like cattle, or have the primitive horrors of a prison. If the county home had any of these features the schemes introduced nine or ten years ago had failed and, however unpleasant it might be to admit it, they were still administering the workhouse system.

The Down County Mental Hospital.

The Down County Mental Hospital, Downpatrick, was founded in 1869, and has since then undergone a considerable amount of structural alteration and extension; at present it has accommodation for 420 men and 420 women. In his annual statistical report for the year ending December 31st, 1929, Dr. M. J. Nolan, the resident medical superintendent, mentions that at the close of the year under review there were in residence 400 men and 374 women. He remarks that this margin of vacancies, besides being of great advantage from an administrative standpoint, is of very considerable monetary value to the county, since it enables the committee to undertake the treatment of paying patients from outside the district. During 1929 there were admitted 69 men and 63 women, this figure exceeding by 34 the number admitted in 1928. Of 56 patients who were discharged, 47 had recovered, 7 had been relieved, and 2 were unimproved. The death rate during the year was considerably increased by a wave of high mortality which swept over the country, resulting in the deaths of many senile patients and of younger patients, following influenza. Dr. Nolan points out that the probable improvement in the administration of lunacy laws which future years will bring must necessarily entail some degree of increased expenditure on the Down County Mental Hospital. It is hoped that during the present year a fully equipped building for electro-medical and hydrotherapeutic treatment will be brought into being, and additional verandahs and shelters provided. The scope of treatment is being widened by the extension of occupation therapy, and special rooms are provided for such activities as basket-making, raffia, leather, and wool work.

Scotland.

Department of Health.

DR. J. L. BROWNLIE, M.D., D.P.H., who is at present county bacteriologist and pathologist in Lanarkshire, has been appointed a medical officer of the Department of Health for Scotland. Dr. Brownlie graduated in medicine at Glasgow University in 1913, took the diploma of public health (Cambridge) in 1916, and proceeded M.D., with high commendation, in 1918. Among his previous appointments are those of resident medical officer for several years in Glasgow fever hospitals, and that of assistant bacteriologist for six years in the Glasgow Corporation Laboratory. He has completed some promising research work, and made a number of contributions to medical literature.

Presentation to Dr. P. Murray Kerr.

Dr. P. Murray Kerr, T.D., J.P., who recently retired from the post of senior surgeon to the Dumfries and Galloway Royal Infirmary, was the recipient of a public testimonial at a large gathering on August 20th. A native of Dumfries and graduate of Edinburgh University, Dr. Kerr succeeded his father in practice in 1890, and has been associated with the infirmary for thirty-six years. For a time he was president of the Border Counties Branch of the British Medical Association. In addition to his many medical activities, he has been closely identified with numerous aspects of public life in the town and district. A keen Volunteer and Territorial, he succeeded to the command of the 5th King's Own Scottish Borderers in 1911. In 1915 he went out to the Dardanelles as its commanding officer, but contracted dysentery and had to be invalided home. In 1920 he was made honorary colonel of the battalion. In the early part of this year he was appointed honorary sheriff-substitute of Dumfriesshire. Provost Brodie made the presentation of an illuminated address, a radio-gramophone, and a cheque to Dr. Kerr, and referred appreciatively to his services as surgeon, citizen, and soldier. With him was associated Mrs. Kerr, to whom a tribute was paid by Sir James Crichton-Browne. Many letters of apology for absence were read, including one from Dr. Joseph Hunter, M.P., a former colleague.

Scottish Vital Statistics.

The main features of the vital statistics of Scotland for the second quarter of the year are a birth rate of 20.4 per 1,000, a marriage rate of 6.8, a death rate of 13.1, and an infantile mortality rate of 73 per 1,000 registered births. The birth rate is 0.9 below the mean of the rates for the second quarters of the preceding five years, and 5.5 below the mean of those for the second quarters of the preceding ten years. The death rate, 13.1 per 1,000, is 2.7 less than in the previous quarter, and slightly below the mean for the second quarter of recent years. The infantile mortality rate of 73 per 1,000 is the lowest recorded for any second quarter since 1913, the earliest year for which quarterly infantile mortality rates for Scotland are available.

England and Wales.

The New Housing Act.

THE Ministry of Health has issued a circular (No. 1138) to county councils, county borough councils, and other local authorities in England and Wales which are concerned, directing their attention to and setting out the provisions of the Housing Act, 1930, which came into operation on August 16th. In an introductory note the Minister reminds authorities of the principal objects of the Act, which are to facilitate the task of clearing away existing slums and to prevent the deterioration of other areas and the consequent creation of new slums. To meet the economic difficulty of rehousing slum dwellers at rents which they can afford to pay, increased financial assistance on a new basis has been provided; this will be available to local authorities for rehousing not only persons displaced from clearance and improvement areas, but also those who have to leave individual houses about to be demolished. The Minister urges on local authorities the need for working to a definite system, which will co-ordinate the work of clearance and rehousing under the new Act with the ordinary building of new houses with assistance under the Housing (Financial Provisions) Act, 1924. Under the new Act it is the duty of every local authority to consider the housing needs of its area, and, as often as occasion arises or within three months of receiving notice from the Minister, to submit proposals for the provision of new houses. Furthermore, the authority of every area having a population of over 20,000 should submit in the present year a programme of the steps it proposes to take during the ensuing five years for dealing with the housing problem of its area. The Minister takes the view that local authorities will avail themselves of the financial assistance under the Act of 1924 to meet their ordinary housing needs, depending on the assistance provided by the new Act to meet the expense of moving dwellers in unhealthy areas to better homes. He draws the special attention of councils and rural district councils to the provisions contained in Part IV of the Act regarding housing in rural districts, pointing out that the proper housing of agricultural workers forms a vital element in any progressive agricultural policy, and appeals to the responsible local authorities to formulate plans without delay for dealing comprehensively with the housing needs of rural areas. Copies of the circular may be obtained from His Majesty's Stationery Office (price 6d.).

Malaria Therapy in the Cardiff Mental Hospital.

At the City of Cardiff Mental Hospital, according to the annual report for 1929, the serum of every newly admitted patient is tested for the Wassermann and Sachs Georgi reactions, in order to ensure that no early case of general paresis shall be missed. Dr. P. K. McCowan, the medical superintendent, is of opinion that the early diagnosis of general paresis has become more than ever an urgent practical problem, since it has been established that a considerable proportion of sufferers from this condition can be highly benefited by malaria therapy. At the institution under his supervision the routine serum examination is followed by a complete examination of the cerebro-spinal fluid of every patient with a positive reaction or in whom there are any clinical signs whatever suggestive of syphilitic involvement of the central nervous system. Cases diagnosed as general paresis are treated by a combination of induced malaria and the administration of tryparsamide, preferably in this order; but to patients whose physical condition contraindicates the induction of malaria the arsenical treatment is given first. In the ordinary way tryparsamide is given two months after the subsidence of the malaria, the interval being allowed on the grounds that it seems inadvisable to give an antimalarial drug when it is known that the good results of malaria therapy continue to show themselves for some months after the malaria has stopped. The preliminary dose of tryparsamide is 1.5 grams, and this is followed by seven weekly doses of 4.5 grams. The results have been very satisfactory, especially in early cases.

Mental Diseases Research in Birmingham.

In his report for the year ended March 14th, 1930, Dr. F. A. Pickworth, director of the laboratories of the Joint Board of Research for Mental Diseases of the City and University of Birmingham, records further progress in the investigations he and his co-workers have been conducting on the primary changes that occur in chronic mental disease, especially those in the neighbourhood of the brain. Post-mortem examinations have substantiated their previous findings, to which reference has been made (*Journal*, July 27th, 1929, p. 162), that macroscopical changes in the sphenoidal sinuses and the antra are present in persons with chronic mental disorder. In some cases they have found adhesions in the region of the middle fossa, between the pia-arachnoid and dura mater; from this they deduce that previous mild sepsis has extended by way of the fifth nerve to the brain membranes. In many post-mortem examinations, even on elderly patients, they have detected distinct adenoid remnants, with a pustular condition of the tissues in the neighbourhood of Rathke's pouch. The investigation of the spread of actual organisms to the brain membranes is being continued, and to this end a number of experiments with animals are in progress. In the bacteriological laboratory it has been found, as in previous years, that a large proportion of newly admitted patients give a positive agglutination reaction to the paratyphoid and dysentery groups of organisms.

Correspondence.

MASSIVE COLLAPSE OF THE LUNG.

Sir,—Dr. Woodburn Morison's ingenious explanations of the pathogenesis of massive collapse of the lung, which were published in the *Journal* of August 16th (p. 237), add peculiar interest to his recent British Medical Association Lecture on this clinical condition, and help us to understand many of the difficult problems this subject presents.

In his summary Dr. Morison maintains that "the weight of evidence is in favour of the theory that spasm of the bronchial musculature is the essential feature of active lobar collapse, but the disturbance of the sympathetic innervation must also be taken into account." He recognizes two stages in acute lobar collapse, the first being a dilatation of the bronchi of the area of lung involved, due to reflex irritation of the sympathetic, and leading to accumulation of mucus in the bronchi; from this stage early recovery is not infrequent.

This active dilatation, so he suggests, is usually succeeded by bronchiolar spasm, which causes the lobar collapse, and in support of his contention he states that in cases of asthma it is evident that spasm does occur in the lung. Now this is rather begging the question, for it is not evident that spasm does occur in cases of asthma; if it does it is quite exceptional. But why introduce the idea of "spasm," which is merely an ingenious hypothesis in cases of massive collapse? Is not the pathogenesis of acute lobar collapse more simply and completely explained by a paresis or paralysis of the physiological rhythmical dilatation and contraction of the bronchi in inspiration and expiration, which I described in 1903 in the March number of the *Bristol Medico-Chirurgical Journal*? At birth the solid lung is expanded and the alveoli are filled with air by this physiological mechanism, and if for any reason the mechanism fails in any area the corresponding lung remains in a condition of atelectasis. In later life bronchioles, previously dilated and now actively dilating and contracting, may become paralysed when the regions of the lung they supply revert approximately to the pre-natal state of collapse. When such paralysis is a temporary inactivity and passes off, the rhythmical contraction and dilatation is resumed, and the collapsed lung becomes re-inflated, just as it did originally at birth.

The ball-valve theory of Gairdner to account for lobular collapse of the lung is rightly set aside by Morison as untenable; the mucus that often collects and fills the lumen of a paretic bronchus is a passive collection, quickly expelled as soon as the bronchus resumes its normal physiological contractions and dilatations. Furthermore, it seems more probable that sudden spasm of the bronchi and bronchioles must lock up the air in the corresponding pulmonary alveoli, and then no collapse could occur until such contained air was absorbed, a process by no means sudden.—I am, etc.,

Bristol, Aug. 25th. Patrick Watson-Williams.

OBSERVATION AND EXPERIMENT.

Sir,—In the *Journal* of August 16th (p. 266) Dr. Manson expresses the hope that medicine will pass beyond the practical aim of curing illness and seek to become a true science giving "its own unique contribution to abstract thought and philosophy." In order to do this, he rightly says that the phenomena of the "sick man" must be studied. That means that medicine must concern itself with the individual rather than with the disease. As soon as it does so the student will find that he is confronted with problems, not only of anatomy and physiology, but also of psychology; the result of this triune study may well prove a revolution in medical thought and practice. It is not so long since it was considered a daring innovation to suggest that functional complaints such as the various neuroses might have purely functional causes, while to hint that organic disease might be influenced by emotional stress was rank quackery.

To the interested onlooker, however, it is apparent that a leaven is working in the profession which is considerably modifying the dogmatic materialism of the past. Within the last year the medical officer of health of a large industrial centre has published a book in which he refers to both cancer and phthisis as being primarily neuroses, and, moreover, suggests that wrong thinking may prove to be the determining factor which changes a harmless microbe into a virulent one. He thus makes a very definite approach towards the standpoint of Christian Science, which, after all, must have some sort of foundation on which to support its vast edifice. About the same time a well-known dental surgeon published a paper in which he asserted that mental worry was the cause of pyorrhoea—thus removing the quadruped from the rear of the vehicle and putting it for the first time in its proper place. Still more recently an eminent surgeon has committed himself to the statement that most of us suffer off and on from ulcer of the stomach or duodenum, and that worry and overwork may cause the symptoms to become acute.

A much more notable advance is made by Dr. Hazlett Frazer, whose letter was also published in the *Journal* of August 16th. He courageously claims for nervous strain a very important part in the etiology of rheumatic affections, and even advocates treatment by psychological analysis. Startling though this suggestion may seem to some, to future generations it will perhaps appear more remarkable that for centuries the medical profession should have been aware of the fact that a fit of temper frequently results in an attack of gout, and yet fail to make the deduction that mental states may be the deciding factor in other metabolic changes. There has been some recognition of the fact that worry predisposes to diabetes, but hitherto these things have been treated as isolated facts, and not built, as they should be, into the integral structure of medicine. Even though every woman knows that nerve strain, or even actual willing, can delay the incidence of the menses, it was possible for a distinguished gynaecologist the other day to mention a thorough knowledge of anatomy and physiology as the essential equipment for his specialty, and omit all reference to the woman's psychology. Still, as I have said, the leaven is working, and when at length a true science of medicine is in existence it may well be that psychology will play the part of the corner stc which was once rejected.—I am, etc.,

Birmingham, Aug. 23rd. R. MACDONALD LADELL.

CHLOROFORM IN LABOUR.

SIR,—I had hoped to see some comment on the article on the action on the human uterus of anaesthetics, by Drs. A. W. Bourne and J. H. Burn, in the *Journal* of July 19th (p. 87). The aim of the writers was good, for investigation into that subject is overdue; but their results appear to invite discussion. In the absence of more authoritative criticism, may I raise a few points on their observations regarding chloroform?

After an introduction concerning the apparatus used they proceed, "We now describe records showing the effect of . . . chloroform"; later they say, "It seems elementary that for any final decision . . . there should be a clear mental picture of what this action is"; then they furnish two records—one lasting for twelve minutes of anaesthesia (how deep they do not state) in the first stage of labour; the other taken during a fifteen minutes' administration in a "fully developed second stage," where the depth, they admit, never attained "full surgical anaesthesia." A single confinement might have yielded both records, or the data may have been drawn from two confinements; but obviously the scope of the investigation was very restricted, and the authors do not state whether the patient was a primipara, young or old, weak or strong, or nervous or indifferent. "But," they conclude, "from the point of view of the patient there seems little doubt that the use of chloroform is not in keeping with modern enlightenment." I submit that they have not shown the effect of chloroform (but only a part of its effect in one or two individuals), that their conclusions are premature, and that we still lack that "clear mental picture" without which it is idle to credit ourselves with "modern enlightenment."

My points (based on the clinical experience of over thirty years in general practice) are as follows.

1. Idiosyncrasy plays a big role in chloroform anaesthesia: in one person a few drops may secure profound unconsciousness, while an ounce fails to achieve it in another. To generalize from one or two experiences, therefore, is never safe, and to dogmatize is unwarranted.

2. In some cases, notably in those susceptible individuals who swiftly attain deep anaesthesia under very little chloroform, uterine contractions continue almost unabated throughout; usually, however, the first effect of the administration is to diminish or stop the pains for a period of ten, fifteen, or twenty minutes, after which labour in most cases appears to go on with at least the same energy as (and sometimes more than) previously. I do not possess "a simple apparatus for recording graphically the changes in the intrauterine pressure"; but I have attended hundreds of women in deep anaesthesia who have delivered themselves unaided by forceps.

3. I am glad to note the evidence of the authors that "in a series of 562 cases [with chloroform] there has been no increase in the incidence of post-partum haemorrhage." That is a fact to drive home. My experience goes further. Thirty years ago, when the use of chloroform was occasional and tentative, post-partum haemorrhage was a very real risk, arising fairly often; now it is non-existent, or seems so. In twenty years, with practically every patient deeply anaesthetized, I have never had a serious instance of haemorrhage. The common cause of post-partum haemorrhage is exhaustion.

4. An obstetrician accustomed to secure full surgical anaesthesia from the moment his patient is having pains every five minutes, with a thinned os dilated to an inch and a half in diameter, will seldom quarrel with chloroform. I assume that he keeps a watchful eye and ear upon his patient. A woman in labour is for such anaesthesia the safest subject known to us. We know, also, that while morphine in quarter-grain doses will stop labour, half-grain doses induce a sleep in which the pains continue; the same argument, I submit, applies to chloroform.

5. The discussion at the Annual Representative Meeting on the special committee's report (*Supplement*, August 2nd, p. 88) raises an analogous point, hinting that chloroform anaesthesia may predispose towards "instrumental delivery at too early a stage." That observation may be connoted with the dictum of Drs. Bourne and Burn that "the reduction in the efficiency of the contraction which it [chloroform] causes is often of benefit in avoiding perineal tears." Both suggestions imply the use of chloroform in inadequate doses. Given adequately, labour continues and the doctor is not tempted to resort to forceps sooner than he should. Pituitary extract acts normally in the deepest anaesthesia. Chloroform will not work miracles, except in an occasional neurotic case, but it gives oblivion to tortured women, enables the doctor to use his judgement in peace, and, even after a prolonged deep anaesthesia, the patient awakes astonishingly fresh.

6. Finally, I should like to suggest that this deep anaesthesia permits such freedom in manipulation that its general adoption would wipe out many vexed questions of "difficult labour," and render obsolete whole chapters and books on the subject.—I am, etc.,

Belfast, Aug. 11th. ROBERT WATSON.

X-RAY TREATMENT OF TONSILS.

SIR,—In reply to Dr. Webster's letter of August 9th (p. 228) I would point out that in his original letter of February 1st he suggested radiation weekly up to 4 H with 4 mm. Al filter. By June 28th (p. 1197) this has become "50 per cent. or less of the erythema dose with a 4 mm. Al filter fortnightly." In the confusion I have been guilty of misquoting the time period; however, I rather gather that Dr. Webster prefers to remain indefinite about his dosage, especially as to whether the tonsils themselves are to receive 50 per cent. of an erythema dose even fortnightly.

In connexion with my objection to the secondary radiation of the thyroid and accessory structures, I am very surprised that Dr. Webster has not found cases of injury to tissue caused by repeated diagnostic exposures. I have seen several cases of baldness following the over-enthusiastic *x*-ray examination of sinuses, and I know other workers who have also had similar experiences. Regarding the pathological argument, Dr. Webster in the *Journal* of June 28th stated that haemolytic streptococci in tonsillar crypts were probably not malign; *rather the contrary*, as these organisms were essential factors in the normal antibody laboratory. He now changes his ground to an argument that the reticulo-endothelial system as a whole forms antibodies; this proposition, so far as I am aware, is pretty generally agreed upon; but surely the tonsils form a very small part of this vast system. May I repeat that I cannot agree that haemolytic streptococci are beneficial to the

tonsil, or to any other structure, and that they can scarcely be seriously regarded, as Dr. Webster would have us believe, as "the normal antibody laboratory" for organisms lying on their epithelial surface. At the risk of repetition may I suggest that Dr. Webster cannot "have it both ways"? Even if bacteria cause a local production of antibodies *x*-radiation would surely correspondingly reduce the number of antibodies if it causes a diminution in the number of these organisms. This was probably the reason why Mr. Asherson (*Journal*, February 15th, p. 313) emphasized the point that by means of radiation "it is not possible to prevent the tonsil from becoming subsequently the seat of any disease this organ is heir to."

Dr. Webster has performed a service, however, in suggesting that it is not always necessary that all tonsillar tissues should be removed, and that it is sufficient to sterilize *in situ* the infected area. To my mind, nevertheless, this or the complete enucleation is best effected by diathermy under surface anaethesia.—I am, etc.,

London, S.W.15, Aug. 22nd. WARNER COLLINS.

PERNICIOUS ANAEMIA AND BLOOD TRANSFUSION.

SIR,—I should like to endorse Dr. Charles Don's findings regarding blood transfusion in cases of pernicious anaemia, published in the *Journal* of August 23rd (p. 280). In those very severe cases with counts under a million and fever I consider that an unjustifiable risk is run by *not* transfusing the patient.

Since the introduction of the liver treatment I, personally, have found transfusions to be seldom necessary, but a case recently seen by me in consultation illustrates its value; it is especially interesting in view of Dr. Don's fourth patient, who died, and who was not given a blood transfusion as she was his first case of pernicious anaemia to receive liver, but who "vomited repeatedly."

My patient was a man, aged 44, who had been treated by liver and liver extract for some weeks without effect, and was rapidly going downhill. When I saw him his temperature was 102° F., and he was of a pale lemon-yellow colour. He was restless, and speech was difficult; he complained of severe abdominal pain, and had vomited everything, including water, for the previous few days.

The red blood cells were under 1,000,000 per c.mm., and he appeared to be moribund. I admitted him to hospital and gave him a blood transfusion of 600 c.cm. of citrated blood, with an effect little short of miraculous. The vomiting stopped immediately; next day he was taking peptonized milk, and four days later he started liver extract. The temperature reached normal in a few days, and remained down. He never looked back, and left hospital just under five weeks after admission, healthy in appearance and with a good appetite, and having 3,300,000 red blood cells per c.mm. and 66 per cent. haemoglobin. He had gained over 8 lb. in weight.

I feel quite certain this patient would have died except for the blood transfusion.—I am, etc.,

London, W.1, Aug. 23rd. NORMAN HILL.

IDIOPATHIC HAEMORRHAGE IN THE NEWBORN.

SIR,—In the *Journal* of August 9th (p. 213) there was an account of a case of haemorrhage in the newborn. The authors stated that treatment by the intramuscular injection of parental blood was not mentioned in the textbooks, and that they had based their treatment on memories of a case published in the *Journal* (1929, i, p. 68). In 1920 (*Journal*, i, p. 539) I published the account of several cases I had treated in this manner. The first time I employed the treatment I was led to do so because I had had a fatal case, and was searching for a method of saving these babies. It simply occurred to me that there was some body essential to blood-clotting absent from the infant's blood; why not endeavour to supply it from the parent's blood? The effect was magical. I first used 5 c.cm. of blood; now I find that 2 c.cm. suffices, but I have not tried less. I do not know whether my cases were the first thus treated or reported. I can certainly claim to have originated the treatment in my own experience.

On searching the *Medical Annual* I discovered that there was no mention made of the treatment until an article on haemorrhages in the newborn in the 1924 issue (p. 306), which deals rather with death just before or immediately following birth from the effects of haemorrhages into the central nervous system. But on page 308 the treatment of the "haemorrhage disease" is mentioned as being the injection of normal whole blood. This article also refers to a monograph by Townsend published in the *Boston Medical and Surgical Journal* (1891, cxxv, 218) on the haemorrhagic diathesis in the newborn. Can anyone inform me whether he mentions the injection of normal whole blood as the best method of treatment?

The same treatment is efficacious in purpura haemorrhagica, of which I reported four successful cases thus dealt with (*Journal*, 1923, i, p. 16).—I am, etc.,

Melton Mowbray, Aug. 17th. MONTAGUE DIXON.

THE CUSTOMS AND BELIEFS OF MANKIND.

SIR,—I can heartily endorse the views expressed in the second leading article in the *Journal* of August 9th on the study of the customs and beliefs of mankind as a desirable hobby for medical men; the fact that the old and modern schools of thought are at variance increases the interest in the subject. It is sometimes difficult to decide what books should first be selected from the mass of literature on the matter, but it can safely be said that Sir James Frazer's monumental work, the *Golden Bough*, which can now be obtained in an abridged form, provides an excellent starting point. Inspired by this work, Miss Weston's *From Ritual to Romance* directs our footsteps in quest of the Grail. The debt of civilization to Egypt and the world-wide influence of that country are revealed by Professor Elliot Smith in his *Ancient Egyptians*, and the meaning of incense and libations, the connexion between dragons and rain gods, and the origin of the mother-goddess are fascinatingly described in his *Evolution of the Dragon*. Mr. W. J. Perry tells of gods and kings, the children of the sun, and the efforts of man to attain immortality in his *Origin of Magic and Religion*; of the peaceful propensities of primitive man and the development of war in his *Growth of Civilization*. Mr. Massingham provides a most readable account of the influence of Egypt on the Megalithic culture in England in *Downland Man*, while Dr. Rendel Harris's Woodbroke Essays and Caravan Series of pamphlets will be found most entertaining.—I am, etc.,

Bexhill-on-Sea, Aug. 11th. G. LOWELL WEBB, M.D.

THORACIC STOMACHS.

SIR,—An article by Mr. A. Wilfrid Adams, which appeared in the *Journal* of August 9th (p. 208), dealt with one case of pharyngeal pouch and two of cardiospasm, and to the dilatations characteristic of these affections the author applies the "picturesque title" thoracic stomachs. It is unfortunate that the nomenclature of these two diseases—which in the past has given rise to much discussion—should be further complicated by an inappropriate addition. The term in its proposed new connexion is the more unsuitable in that it is already used to designate a definite and quite different entity, the chief features of which are the presence of the stomach in the thorax and a short oesophagus. These abnormalities are supposed to be due either to hypoplasia of the oesophagus or to the primitive stomach having been situated unusually far forward on the alimentary canal. In a short paper read on June 20th at the meeting of the Laryngological Section of the Royal Society of Medicine, and mentioned in the *Journal* of June 28th (p. 1175), I referred to thoracic stomach and certain allied affections.—I am, etc.,

Glasgow, Aug. 20th. A. BROWN KELLY.

Obituary.

HUGH SMITH, M.D., F.R.C.S.,

Consulting Physician, Somerset Hospital, Cape Town.

We regret to have to record the death of Dr. Hugh Smith, which took place at his home in Cape Town on July 2nd.

Hugh Smith, who was born in London in 1863, received his early education at the City of London School, subsequently entering the London Hospital after winning an entrance scholarship. In 1886 he obtained the diploma M.R.C.S., and in the following year he graduated M.B.Lond. with first-class honours in medicine; he proceeded M.D. in 1889, in which year he also became a Fellow of the Royal College of Surgeons. After holding several resident appointments, among them that of house-physician to Hughlings Jackson, he commenced general practice in North London in 1891, remaining there until 1900, when he went to Cape Town to join the late Sir Alfred Thompson in partnership. In 1902 he became honorary physician to the Somerset Hospital at Cape Town, and was appointed consulting physician on his retirement from this post in 1919. During the war he was consulting physician to the military hospitals at Wynberg and Maitland. Until the time of his death he was lecturer in dermatology in the faculty of medicine of the University of Cape Town, and during the greater part of his professional life in that city he was also consulting dermatologist to the Somerset Hospital.

Dr. Hugh Smith was recognized as a reliable and careful physician, imbued with the highest ideals of his profession, and devoted to the service of his colleagues and the public. He was an active member of the British Medical Association, holding office as president of the Cape of Good Hope (West) Branch in 1914, and being a member of the Branch Council from 1915 to 1925. He was also president of the medical congress which met at Cape Town in 1921, and served on the South African Committee of the British Medical Association. His publications included articles on cerebral tumours. He is survived by his widow.

Dr. William Craig was the senior medical practitioner and one of the most prominent citizens in the town of Cowdenbeath, Fife, where his death took place on August 14th. A native of Dumfries, he graduated M.B., C.M. at the University of Edinburgh in 1886, proceeding M.D. in 1900. In addition to conducting a busy practice, he had held the position of medical officer of the burgh for the long period of thirty-seven years. In all activities promoted for the welfare of the district he took an active part, and among the many institutions which benefited by his guidance and help were the literary society, the golf club, the angling club, and the curling club. He was also prominently identified with Beath parish church. Dr. Craig is survived by a widow and a family of three, one of whom is a member of the medical profession.

Dr. Frederick George Lloyd of Oakwood Court, Kensington, who died on August 6th, in his sixty-sixth year, was educated at St. Bartholomew's Hospital, and became M.R.C.S., L.R.C.P. in 1892. He was subsequently resident medical officer at the West London Hospital. In 1895 he was in medical charge of the transport *Harlech Castle*, which brought back many of those who had taken part in the Jameson raid. During the Boer war he was for some time attached as surgeon to the Brigade of Guards Hospital, London, and afterwards served as a civil surgeon in H.M. Field Force, receiving the medal and clasps. During the more recent war Dr. Lloyd served at home, and was for a time in medical charge of the late Lord Dunraven's yacht *Grianaig*, which was used as a hospital ship. A regular attendant at the meetings of the West London Medico-Chirurgical Society, of which he had been a member since 1902, he was for some time on the council, and also a vice-president, reading papers from time to time. In the session of 1920–21 he opened a discussion on the interim report of the Consultative Council of the Ministry of Health on Medical and Allied Services. He also took a keen interest in the voluntary hospital question, and spoke on it frequently in various places. He was very popular with his patients and colleagues.

Dr. James Burnett Lawson, who died at Rothesay on August 9th, at the age of 71, was a well-known figure throughout the West of Scotland. He was a graduate of Glasgow University, where he received the degrees of M.B., C.M. in 1883 and of M.D. in 1886. Soon after graduation he built up a large practice in Rothesay, from which he retired some time ago on account of ill-health. For many years he held the offices of medical officer of Rothesay parish and of Bute schools; he was also medical officer to the Admiralty. He was a justice of the peace, president of Bute Benevolent Society, and for some time a member of the town council. Only a few weeks ago he received a public testimonial in recognition of his services. Dr. Lawson was possessed of much literary ability; his writings include *Glimpses of Rothesay and its People Fifty Years Ago* and *A Cameronian Officer*, the latter a memoir of his son, Lieutenant James B. Lawson, who was killed in the war. He contributed articles on "Phthisis pulmonalis with emphysema" to the *Glasgow Medical Journal* in 1880, and on "A general practitioner's experience of lunacy certification" to the *Practitioner* in 1925. Dr. Lawson is survived by his wife, two sons, and two daughters.

Dr. John Humphry Williams, J.P., who died on August 17th, at the age of 72, had practised in Flint during the greater part of his life. He received his medical education at Edinburgh, where he graduated M.B., C.M. in 1881, and proceeded M.D. five years later. He was medical officer of health for the borough of Flint, Connah's Quay Urban District, and Chester Port, and honorary surgeon to Flint Cottage Hospital. He held a commission in the R.A.M.C.(T.). He was a member of the British Medical Association, and was chairman of the Denbigh and Flint Division in 1922; he served on the executive committee in 1928. A colleague writes: Dr. Williams was a prominent member of, and a regular attendant at, meetings of the British Medical Association and of the local panel committee. As "Father" of the Flintshire County Council, he was prominent on the Liberal side, enjoying debates, politics, hard-fought elections, and platform speaking. He was a particularly well-read man, fluent in two languages. As a physician he was excellent and most hard-working, snatching his recreation in the form of public work. Dr. Williams was highly respected and beloved by his colleagues, patients, and political opponents, by reason of his blunt honesty and kindness of heart. He leaves a widow, daughter, and two sons.

The following well-known foreign medical men have recently died: Dr. C. Lenormant, professor of surgical pathology in the Paris faculty of medicine; Dr. Hans Knorr, professor of orthopaedics and head of the orthopaedic clinic at Heidelberg; Dr. Julius Raecke, a Frankfurt psychiatrist; Geheimrat Dr. Paul Kraske, emeritus professor of surgery at Freiburg, aged 80; Professor Siegfried Kaminen, co-founder with Professor Senator and for many years editor of the *Zeitschrift für Balneologie* and *Jahrbucher für Balneologie*, aged 57; Professor Ludwig Rehn, an eminent Frankfurt surgeon; Dr. Edmund Herrmann, an obstetrician and gynaecologist of Vienna, aged 55; Professor Louis Bok, professor of anatomy and formerly rector of the University of Amsterdam, aged 64; Dr. Emil Redlich, extraordinary professor of neurology and psychiatry at Vienna, aged 64; Dr. Ernest Conseil, director of the Tunis bureau of hygiene, and a collaborator of Dr. Charles Nicolle of the Pasteur Institute of Tunis, and Dr. Lalanne, an alienist of Nancy.

Universities and Colleges.

UNIVERSITY OF LONDON.

Applications for the William Julius Mickle Fellowship must be sent in before October 1st. Full particulars can be obtained from the Academic Registrar, University of London, South Kensington, S.W.7. The Fellowship, which is of the value of at least £200, is awarded to the man or woman who, being resident in London and a graduate of the University, has, in the opinion of the Senate, done most to advance medical art and science during the preceding five years.

University College Hospital Medical School.

The Goldsmid Entrance Exhibitions for 1930 have been awarded to Mr. G. Quist and Mrs. M. H. James of University College, London.

UNIVERSITY OF ABERDEEN.

Dr. David Campbell, Pollok Lecturer in pharmacology and therapeutics in the University of Glasgow, has been appointed Regius professor of materia medica in the University of Aberdeen, in succession to Professor Charles Robertshaw Marshall, whose resignation takes place on September 30th.

SOCIETY OF APOTHECARIES OF LONDON.

The following candidates have passed in the subjects indicated:

Surgery.—G. P. Charles, H. G. Edmunds, C. W. Ellison, E. J. Jones, N. I. Kronenberg, W. Montgomery Smith, H. I. Newman, R. D. Newton, K. V. Pillai, L. Sachs, I. J. Todd-Naylor, G. H. C. Walmsley.

Medicine.—H. W. E. Dickey, E. A. Freywirth, N. I. Kronenberg, J. M. L. Love, W. Montgomery Smith, H. I. Newman, I. J. Todd-Naylor.

Forensic Medicine.—M. M. Barritt, J. S. P. Coutts, C. R. Graham, M. Halperine, N. I. Kronenberg, W. Montgomery Smith, H. I. Newman, W. K. Schnarr, G. H. G. Walmsley, I. M. Williams.

Midwifery.—S. Gurevich, M. Halperine, E. I. B. Hawes, W. Montgomery Smith, W. W. Parry.

The diploma of the Society has been granted to Messrs. M. M. Barritt, G. P. Charles, H. W. E. Dickey, H. G. Edmunds, C. W. Ellison, E. A. Freywirth, N. I. Kronenberg, W. Montgomery Smith, I. J. Todd-Naylor, G. H. C. Walmsley.

Medical News.

The University of Birmingham will celebrate, on October 13th, the jubilee of the foundation of Mason College and the thirtieth anniversary of the granting of the University charter.

St. Bartholomew's Hospital old students' annual dinner will be held on Wednesday, October 1st, at 7.30 p.m., in the great hall of the hospital, with Mr. L. B. Rawling in the chair. The honorary secretary is Sir Charles Gordon-Watson, 82, Harley Street, W.1.

The St. Thomas's Hospital old students' dinner will take place at St. Thomas's House, Lambeth Palace Road, S.E.1, on Friday, October 3rd, at 7.30 for 8 p.m. The chair will be taken by Dr. R. Muzio Williams, J.P.

The opening ceremony of the winter session of the Middlesex Hospital Medical School will take place at the Queen's Hall, Langham Place, W.1, on October 1st, at 3 p.m. The prizes and medals gained by students and nurses during the past year will be given away by Mr. Arthur Greenwood, M.P., Minister of Health, and the introductory address will be delivered by Mr. Eric Pearce Gould, M.Ch., F.R.C.S. The hospital and medical school will be open for inspection after the ceremony, and tea will be provided. The annual dinner of past and present students of the hospital will be held at the Savoy Hotel in the evening.

The annual dinner of past and present students of St. Mary's Hospital Medical School will be held at the Trocadero Restaurant on Friday, October 3rd, at 7 p.m., with Dr. J. Reginald Fuller in the chair.

The prize distribution and conversazione of the Royal Dental Hospital of London School of Dental Surgery will be held at the hospital, Leicester Square, W.C., on Thursday, October 2nd, at 8 p.m. Sir John Rose Bradford, P.R.C.P., will preside.

Under the auspices of the National Association for the Prevention of Infant Mortality a special course of maternity and child welfare lectures will be held for health visitors, nurses, midwives, school teachers, and welfare workers in the lecture theatre of University College, Nottingham, from September 15th to 19th. In conjunction with this course visits will be paid to various institutions; arrangements for board and lodging in Nottingham will be made on application before September 1st to the secretary, Health Department, Guildhall, Nottingham. Further details of the course may be obtained from the honorary secretary of the National Association, Carnegie House, 117, Piccadilly, W.1.

The new session of the Medical Society of London commences on Monday, October 13th, when the annual general meeting will be held at 8 p.m. At 8.30 p.m. Dr. R. A. Young will deliver his presidential address on "The stethoscope—past and present." On October 27th, at 8.30 p.m., a discussion entitled "The prophylactic and therapeutic values of vaccines" will be introduced by Sir Almroth Wright, Professor Chevalier Jackson will open a discussion, on November 10th, on the diagnosis and treatment of malignant disease of the chest. The Lloyd Roberts Lecture on "Painting and the healing art" will be delivered by Professor William Rothenstein on Wednesday, November 19th, at 5 p.m. A clinical evening will be held on November 24th, at 8 o'clock, and on Monday, December 8th, a discussion on pathological conditions of the eye due to inflammatory changes in other parts of the body will be introduced by Mr. A. F. MacCallan, F.R.C.S., followed by Mr. Ernest Clarke, F.R.C.S. The syllabus of the second half of the session will be issued in December. The Lettsomian Lectures, entitled "The spleen—its structure, functions, and diseases," will be delivered by Dr. J. W. McNee on February 16th and 25th, and March 4th, 1931. Sir John Rose Bradford, P.R.C.P., will give the annual oration on Monday, May 11th, 1931.

The Fellowship of Medicine announces that from September 1st to 13th there will be an all-day course at the Queen's Hospital for Children, when instruction will be given in the various departments of the institution. A revision course, particularly of interest to panel practitioners, will be conducted at the Westminster Hospital from September 15th to 27th; the daily sessions will begin at 10.30 in the morning and continue until 5.30 p.m. All branches of medicine and surgery will be dealt with, and two clinics will be held on the Saturday mornings at mental institutions connected with the hospital. A revision course will also be held at the Metropolitan Hospital from September 29th to October 11th, of a similar nature to that at the Westminster Hospital. An intensive course at the Central London Throat, Nose and Ear Hospital from October 5th to November 1st will be preceded by a course in "methods of examination," starting on September 17th; applications should be made to the Fellowship of Medicine. The subjects of other courses in October are tropical medicine and gynaecology; there will be two evening courses at 8.30—a M.R.C.P. course and a final Fellowship course. For full particulars of the post-graduate study arranged for the winter session, also for the 1931 list of special courses and the *Post-Graduate Medical Journal*, application should be made to the secretary of the Fellowship, 1, Wimpole Street, W.1.

The annual meeting of the German Society for Light Research will be held in conjunction with the German Hygiene Society at Dresden on September 5th and 6th.

An elementary practical course in diseases of the digestive system, organized by Professor F. Gallart, assisted by other members of the medical faculty of Barcelona, will be held at the Hospital de la Santa Cruz y San Pablo, Barcelona, from October 12th to 20th. The fee is 100 pesetas.

The seventeenth French Congress of Hygiene will be held at the Institut Pasteur, Paris, under the presidency of Professor Delépine of the Académie de Médecine, from October 20th to 23rd, when the following subjects will be discussed: the successive changes in the French pharmacopoeias, introduced by the President; comparative statistics of infantile mortality, introduced by Dr. Lesage; the relation of health offices to health inspection, introduced by MM. Aublant and Prunet, and Brocquin-Lacombe and Bennet; and hygiene and reconstruction in the flooded area in the South of France. Lectures will also be delivered by Professor Sacquépée on psittacosis, and by Dr. Dujarric de la Rivière on Lavoisier as hygienist. Further information can be obtained from Dr. Dujarric de la Rivière, Institut Pasteur, Rue Dotot, Paris, XV^e^.

The twentieth Congress of the Italian Society of Laryngology, Otology, and Rhinology will be held in Sardinia from October 15th to 23rd. Further information can be obtained from Professor Deodato De Carli, Clinica Oto-rino-laringologica, Ospedale Gesu e Maria, Naples.

The thirtieth French Congress of Urology will be held at the Paris Faculty of Medicine, under the presidency of Dr. Chevassu of Paris, on October 7th, when a discussion will be held on renal contusions and their remote sequels, introduced by Dr. Gérard of Lille. Further information can be obtained from Dr. P. Pasteau, 13 Avenue de Villars, Paris, VII^e^.

Lieut.-Colonel C. T. Samman has been re-elected Master of the Society of Apothecaries.

Dr. Josef Jadassohn, professor of dermatology at Breslau, has been invited by the Government of Uruguay to be president of the South American Conference on Syphilis at Montevideo in September.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to ***The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.***

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The ***TELEPHONE NUMBERS*** of the British Medical Association and the *British Medical Journal* are *MUSEUM 9861, 9862, 9863,* and *9864* (internal exchange, four lines).

The ***TELEGRAPHIC ADDRESSES*** are:

EDITOR OF THE *BRITISH MEDICAL JOURNAL*, *Aitiology Westcent, London.*

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*

MEDICAL SECRETARY, *Mediscera Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone 24361 Edinburgh).

QUERIES AND ANSWERS.

LIMITATION OF THE GROWTH OF HAIR.

"R. D. M." asks for information about any known factor which limits the growth of hair in some situations, such as the eyebrows and eyelashes, to a certain definite length, whereas in other situations, such as the scalp and face, the growth of hair is continuous.

TREATMENT OF DYSMENORRHOEA.

DR. JOHN R. KEITH (Southsea), replying to Dr. E. R. B. Murray's inquiry (August 16th, p. 272), writes in the course of a letter: In certain conditions, among them dysmenorrhoea, beneficial results may be obtained by applying counter-irritation over the spinal cord. In cases of dysmenorrhoea a cantharides blister may be applied over that part of the cord which is covered by the bodies of the fourth and fifth dorsal vertebrae, and kept in position for three or four days before the expected period. In many cases of painful menstruation points of tenderness may be found to the right or left of one or more of the first four lumbar spines. If firm pressure is made over these sensitive areas the menstrual pain will disappear for several hours or during the whole period. Freezing the tender areas with ethyl chloride or petroleum ether is even more effective.

DR. N. HAIRE (London, W.1) writes: In reply to Dr. Murray's inquiry (August 16th, p. 272), I would suggest the use of an intra-uterine silver ring. This instrument was first devised as a contraceptive, but I have noticed that several patients have been partly or entirely freed from dysmenorrhoea after its insertion.

KEEPING FIT IN HOT CLIMATES.

DR. O. MARRIOTT (Haywards Heath), replying to the inquiry of "C. H. B." in the *Journal* of July 26th (p. 168) writes: After twenty years' actual busy practice in the Tropics, I am of opinion that it is not advisable, and certainly not necessary, to take alcohol in any form in hot climates; I will even go further and say that, in my opinion, a "worker" (mental or physical) is better and more efficient without alcohol under tropical conditions. Several men who have lived successful lives in tropical countries, following such advice given them by me from early days, have taken the trouble to come to thank me for it, having found it so much to their advantage in health and fitness. It is certainly advisable to have always some light thin covering round the abdomen while in bed at night, such as a light tropical weight viyella blanket wrapped round once. Exercise, like all other things in the Tropics, should be taken in moderation. Under true tropical conditions a man can get his skin to act as much as is convenient or healthy—or more so—in his ordinary routine, unless he spends his days under a fan in a club armchair; strenuous physical exercise daily is apt to take too much out of him to permit his carrying on his routine daily work efficiently. Personally, I never touched alcohol during twenty years' hard work in the Tropics, and I always slept with a light blanket round the abdomen, or, if such was not available, used an ordinary "bath" towel as a wrap. With the exception of occasional swimming during my earlier years in the Tropics, I never had any time for strenuous physical exercise, but I obtained all the perspiration I cared for—and generally more—by carrying on my active professional life. I found it a relief at times to slip into my quarters and to strip from clothes wet through with perspiration, have a good warm bath, and a change of clothing.

LETTERS, NOTES, ETC.

THE MEDICAL RESEARCH COUNCIL AND ERGOT STANDARDIZATION.

WE have received the following communication from the manager of "Sandoz" Scientific and Research Department, Wigmore Street, W.:

"In your last issue you give prominence to an official statement by the Medical Research Council under the title 'The Medical Research Council and Ergot Standardization.' The Medical Research Council complain that misuse has been made of their name in literature issued to the medical profession in America by our American house, Sandoz Chemical Works, Inc., of New York. The statement complained of reads as follows: 'The Pharmaceutical Society of Great Britain, after consultation with the Medical Research Council, adopted Gynergen as the standard for ergot.' I am directed by Sandoz Chemical Works, Basle, to request the courtesy of your columns to reply to the communication of the Medical Research Council. To our great regret the official statement of the Medical Research Council is presented in such a manner that it fails to reveal the whole truth. It should be made clear that Gynergen is ergotamine tartrate, and that there is only one ergotamine—Ergotamine, Stoll-Sandoz. The following extract is taken from the *Pharmaceutical Journal* of February 20th, 1926:

'Pharmaceutical Society of Great Britain: The Pharmacological Laboratories.

'(Text of a pamphlet which is being supplied to inquirers by the Secretary of the Society, 17, Bloomsbury Square, London, W.C.1.)

'These laboratories are now in a position to test the drugs and preparations dealt with in detail hereafter.

'3. Ergot.—Samples of ergot will be accepted to be tested in the form of the powdered ergot. The Geneva Conference has made no recommendations in the matter of ergot. The chief active substances which may be present in extracts are ergotamine (or ergotoxin), histamine, and tyramine. It will be assumed that the therapeutically active substance is the specific alkaloid ergotamine, and a test for its amount will be applied to an acid alcoholic extract of the powdered drug.

'As standard a sample of ergotamine tartrate is available, prepared by the Sandoz Chemical Works, Basle.

'The test applied will be the capacity of an acid alcoholic extract prepared from the sample to reverse the action of adrenaline either on the blood pressure of a pithed cat or on the isolated uterus of the rabbit. After consultation with the Director of the Department of Biological Standards, Medical Research Council, it has been decided to approve as good samples of ergot those containing not less than 1 mgm. per gram of the specific alkaloid.'

"Further, in the *Pharmaceutical Journal* of March 13th, 1926, the following appeared:

'In the number of this Journal published on February 20th last a description appeared of the tests which these laboratories are prepared to carry out. When a preparation has been tested, a certificate is issued, which in the case of satisfactory preparations may be used by the maker as the basis of a statement on the label. . . . The statement appearing on the label must be confined to the words . . . .'

'(6) In the case of ergot preparations, c.c of this preparation contains 1 mgm. ergotamine as determined by a biological test carried out by the Pharmaceutical Society of Great Britain.'

"To make the matter more clear we quote from the *Pharmaceutical Journal* of May 14th, 1927, where the Director of the Pharmacological Laboratories, replying to Mr. A. O. Bentley, stated: 'There has been no ergotoxine in this country since the war until a month or two ago.' The reasons which caused the substitution of an amorphous alkaloidal salt, difficult to purify, of lesser stability, less soluble, and which can only be conserved with difficulty (*in vacuo* over phosphorus pentoxide) for a definite, pure, stable, crystalline substance (base as well as salt) is probably not relevant here, but it is clear that ergotamine tartrate *was* adopted as the standard for ergot preparations, and that the Medical Research Council *was* consulted and that the statement by the Medical Research Council is equivocal."

INFECTED EGGS.

MR. J. G. MAYNARD (Somerset), in the course of a letter on behalf of the council of the Utility Duck Club, writes: In the *British Medical Journal* of July 12th (p. 56) an article appeared by Dr. W. M. Scott on food poisoning due to eggs; unfortunately this article has been taken up by the popular press, with disastrous results to producers in this country. The council of the Utility Duck Club does not dispute the evidence brought forward in the article; it does, however, wish to draw attention to the fact that very large numbers of ducks' eggs are imported every year. The conditions under which these are produced are frequently unsanitary, the ducks being kept in large numbers on foul ground where they are fed on fish which is often far from fresh. The resultant disease among the flocks is amply attested. It may safely be stated that such diseases are almost entirely unknown among English birds. When cases of poisoning have occurred the club has tried to trace the origin of the eggs, and in no case of which the council knows have the eggs been produced in this country. All imported eggs have now to be marked with the stamp of country of origin, so that it is possible to avoid imported supplies.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 35, 36, 37, 38, 39, 42, 43, and 44 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 40 and 41.

A short summary of vacant posts notified in the advertisement columns appears on page 340.

VACANCIES.

ALL SAINTS HOSPITAL FOR GENITO-URINARY DISEASES.—House-Surgeon (male). Salary £150 per annum.

ARGYLL COUNTY COUNCIL.—Medical Officer for the District of Glenorchy. Salary includes payment of £126 per annum for services as Local Medical Officer and a grant from the Highlands and Islands (Medical Services) Fund.

BANGOUR MENTAL HOSPITAL, West Lothian.—Second Assistant Medical Officer. Salary £350 per annum, rising to £400.

BARNSTAPLE: NORTH DEVON INFIRMARY.—Resident Medical Officer. Salary £150 per annum.

BARROW-IN-FURNESS: NORTH LONSDALE HOSPITAL.—Two House-Surgeons (males). Salary £175 per annum.

BATH: ROYAL UNITED HOSPITAL.—Assistant House-Surgeon (male, unmarried). Salary £120 per annum.

BEDFORD COUNTY HOSPITAL.—House-Surgeon (male, unmarried). Salary £175 per annum.

BIRKENHEAD GENERAL HOSPITAL.—(1) House-Physician. (2) Casualty Officer. Males. Salary £100 per annum each.

BIRMINGHAM AND MIDLAND SKIN HOSPITAL.—Clinical Assistants in the Out-patient Consulting Room Honorarium 26 guineas per annum.

BOURNEMOUTH: ROYAL VICTORIA AND WEST HANTS HOSPITAL.—House-Surgeon (male) at Boscombe Branch. Salary £150 per annum.

BRIGHTON: ROYAL SUSSEX COUNTY HOSPITAL.—Casualty House-Surgeon (male, unmarried). Salary £120 per annum.

BRISTOL ROYAL INFIRMARY.—Assistant for Cancer Research Laboratories. Salary £400 per annum.

BURSLEM: HAYWOOD HOSPITAL.—Resident Medical Officer. Salary £175 per annum.

CARDIFF CITY MENTAL HOSPITAL, Whitchurch.—Post-graduate Research Studentship. Honorarium £100 per annum, augmented by locum work in the Hospital to approximately £180.

CENTRAL LONDON THROAT, NOSE AND EAR HOSPITAL, Gray's Inn Road, W.C.1.—Honorary Assistant Anaesthetist.

CHICHESTER: ROYAL WEST SUSSEX HOSPITAL.—Junior House-Surgeon. Salary £125 per annum.

DERBYSHIRE HOSPITAL FOR SICK CHILDREN.—Resident Medical Officer (lady). Salary £150 per annum.

DERBYSHIRE HOSPITAL FOR WOMEN.—House-Surgeon. Salary £150 per annum.

DURHAM COUNTY AND SUNDERLAND EYE INFIRMARY.—Clinical Assistant in Out-patient Department. Salary £250 per annum.

EASTBOURNE: PRINCESS ALICE MEMORIAL HOSPITAL.—House-Surgeon (male). Salary £100 per annum.

EDINBURGH: JORDANBURN NERVE HOSPITAL, Morningside.—Assistant Physician. Salary £400 per annum.

ESSEX COUNTY HOSPITAL, Colchester.—(1) Assistant House-Surgeon and Registrar. (2) House-Physician. Males. Salary £120 and £150 per annum respectively.

GLOUCESTERSHIRE ROYAL INFIRMARY AND EYE INSTITUTION.—(1) House-Physician. (2) Second House-Surgeon. Salary £150 and £120 per annum respectively.

GREAT YARMOUTH: GENERAL HOSPITAL.—Two House-Surgeons, Senior and Junior. Salary £150 and £140 per annum respectively.

HALIFAX: ROYAL HALIFAX INFIRMARY.—Third House-Surgeon (male, unmarried). Salary £125 per annum.

HOSTEL OF ST. LUKE, 14, Fitzroy Square, W.1.—Resident Medical Officer. Salary £200 per annum.

HULL ROYAL INFIRMARY.—Honorary Physician.

ILFORD: KING GEORGE HOSPITAL.—Resident Medical Officer. Salary £200 per annum.

IPSWICH: EAST SUFFOLK AND IPSWICH HOSPITAL.—(1) Casualty Officer. (2) House-Surgeon. Males. Salary £150 and £120 per annum respectively.

LEEDS PUBLIC DISPENSARY.—Junior Resident Medical Officer. Salary £150 per annum.

LEICESTER ROYAL INFIRMARY.—(1) House-Surgeons. (2) Casualty Officer. Salary £125 per annum each.

LIVERPOOL AND DISTRICT HOSPITAL FOR DISEASES OF THE HEART.—House-Physician. Salary £52 per annum.

LIVERPOOL EYE AND EAR INFIRMARY.—Honorary Assistant Surgeon to the Ear, Nose, and Throat Department.

LONDON FEMALE LOCK HOSPITAL, 283, Harrow Road, W.9.—House-Surgeon. Salary £150 per annum.

LONDON LOCK HOSPITAL, 91, Dean Street, W.—(1) Surgical Registrar. (2) Additional Surgical Registrar. (3) House-Surgeon at Male Lock Hospital. Honorarium for (1) and (2) £100, for (3) £200 per annum.

LOWESTOFT AND NORTH SUFFOLK HOSPITAL.—Junior House-Surgeon (male). Salary £120 per annum.

MACCLESFIELD GENERAL INFIRMARY.—Resident House-Surgeon. Salary £180 per annum.

MANCHESTER: ANCOATS HOSPITAL.—House-Surgeon (male). Salary £100 per annum.

MANCHESTER CITY.—Assistant Medical Officer at Baguley Sanatorium. Salary £350 per annum.

MANCHESTER: ROYAL MANCHESTER CHILDREN'S HOSPITAL.—(1) Resident Medical Officer. (2) Resident Surgical Officer. (3) Two Assistant Medical Officers for Out-patients' Department. Salary for (1) and (2) £125 per annum, and for (3) £150 per annum.

MANCHESTER AND SALFORD HOSPITAL FOR SKIN DISEASES.—House-Surgeon. Salary £100 per annum.

MANCHESTER UNIVERSITY.—Demonstrator in Chemical Pathology. Stipend £350 per annum.

MANCHESTER UNIVERSITY AND MANCHESTER COMMITTEE ON CANCER.—Assistant in the Cancer Research Laboratories. Salary £400 to £650 per annum.

MANSFIELD AND DISTRICT HOSPITAL.—House-Surgeon and Casualty Officer (male). Salary £150 per annum.

MIDDLESBROUGH: NORTH RIDING INFIRMARY.—Junior House-Surgeon (male). Salary £150 per annum.

MIDDLESEX COUNTY COUNCIL.—Resident Medical Officer (male) at Hillingdon Institution, Uxbridge. Salary £600 per annum.

MIDDLESEX HOSPITAL, W.1.—Dental House Surgeon.

MIDDLESEX HOSPITAL MEDICAL SCHOOL, W.1.—Assistant in Radiological Research bearing upon the treatment of malignant disease. Salary £350 per annum.

MILLER GENERAL HOSPITAL, Greenwich Road, S.E.10.—(1) Casualty Officer; (2) House-Physician. (3) House-Surgeon. Salary for (1) £150, and for (2) and (3) £125 per annum.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART, Westmoreland Street, W.1.—(1) Resident Medical Officer. (2) Out-patient Medical Officer. Males. Salary £150 and £125 per annum respectively.

NORTHAMPTON GENERAL HOSPITAL.—(1) House-Physician. (2) Two House-Surgeons. (3) Two Assistant House-Surgeons. Salary £150 per annum.

NORTHERN IRELAND GOVERNMENT.—Medical Officer. Salary £800–£25–£1,000, *plus* bonus.

NOTTINGHAM: GENERAL HOSPITAL.—(1) House-Physician. (2) Second Casualty Officer (male) Salary £150 per annum each.

OLDHAM ROYAL INFIRMARY.—Two House-Surgeons. Salary £175 per annum.

OLDHAM COUNTY BOROUGH.—Female Assistant Resident Medical Officer (unmarried) at the Boundary Park Municipal Hospital. Salary £200 per annum.

OXFORD: RADCLIFFE INFIRMARY AND COUNTY HOSPITAL.—(1) Three House-Surgeons. (2) House-Physician. (3) Obstetric House-Physician. Salary £120 per annum.

POOLE: CORNELIA AND EAST DORSET HOSPITAL.—House-Surgeon (male). Salary £150 per annum.

PRINCESS LOUISE KENSINGTON HOSPITAL FOR CHILDREN, W.10.—House-Surgeon and Casualty Officer. Salary £75 per annum, rising to £100 on appointment as Senior Resident.

QUEEN CHARLOTTE'S MATERNITY HOSPITAL, Marylebone Road, N.W.1.—(1) Assistant Resident Medical Officer. (2) Resident Anaesthetist. Salary for (1) £80 per annum, rising to £100 on appointment as Senior, and for (2) £80 per annum.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, E.2.—Casualty Officer. Salary £100 per annum.

ROYAL EYE HOSPITAL, St. George's Circus, S.E.1.—(1) Twelve Salaried Refractionists. (2) Twelve Clinical Assistants. (3) Pathologist.

ROYAL NATIONAL ORTHOPAEDIC HOSPITAL, Great Portland Street, W.1.—House-Surgeon (male). Salary £150 per annum.

RYDE: ROYAL ISLE OF WIGHT COUNTY HOSPITAL.—(1) Member of Honorary Medical Staff. (2) Resident House-Surgeon, salary £180 per annum.

ST. JOHN'S HOSPITAL, Lewisham, S.E.13.—Resident Casualty Officer. Salary £100 per annum.

ST. PAUL'S HOSPITAL FOR GENITO-URINARY DISEASES, Endell Street, W.C.2.—(1) Resident Medical Officer. (2) House-Surgeon. Salary £200 and £150 per annum respectively.

ST. VINCENT'S ORTHOPAEDIC HOSPITAL, Eastcote.—Resident Medical Officer (unmarried). Salary £150 per annum.

SALFORD ROYAL HOSPITAL.—(1) House-Surgeon attached to the Orthopaedic Department. (2) House-Surgeon. Salary £125 per annum each.

SEAMEN'S HOSPITAL SOCIETY.—(1) Two House-Physicians at the Hospital for Tropical Diseases, Endsleigh Gardens, W.C. (2) House-Physician and House-Surgeon at Dreadnought Hospital, Greenwich. (3) Medical Officer at Albert Dock Hospital. (4) House-Surgeon at Tilbury Hospital. Males. Salary for (1) and (4) £150, and for (2) and (3) £110 and a proportion of fees.

SHEFFIELD ROYAL HOSPITAL.—Resident Anaesthetist (male). Salary £80 per annum, rising to £100 after six months.

SHREWSBURY: EYE, EAR, AND THROAT HOSPITAL FOR SHROPSHIRE AND WALES.—House-Surgeon (unmarried). Salary £200 per annum.

SOUTH SHIELDS: INGHAM INFIRMARY.—Junior House-Surgeon (male). Salary £150 per annum.

STAFFORDSHIRE GENERAL INFIRMARY.—(1) House-Surgeon. (2) House-Physician. Salary £200 and £150 per annum respectively.

STOCKTON AND THORNABY HOSPITAL, Stockton-on-Tees.—Junior Resident Medical Officer (male). Salary £150.

STOKE-ON-TRENT: NORTH STAFFORDSHIRE ROYAL INFIRMARY.—Assistant House-Physician. Salary £125 per annum.

SWANSEA HOSPITAL.—House-Surgeon (male, unmarried). Salary £150 per annum.

TYNEMOUTH COUNTY BOROUGH.—Assistant Medical Officer of Health (male). Salary £540 per annum.

WALSALL COUNTY BOROUGH.—First Assistant Resident Medical Officer at Manor Hospital. Salary £200 per annum.

WEST BROMWICH AND DISTRICT GENERAL HOSPITAL.—(1) House-Physician. (2) Casualty House-Surgeon. Males, unmarried. Salary £200 per annum.

WEST HARTLEPOOL: CAMERON HOSPITAL.—House-Surgeon. Salary £150 per annum.

WEST LONDON HOSPITAL, Hammersmith Road, W.6.—(1) House-Physician. (2) Two House-Surgeons (males). (3) Resident Anaesthetist. Salary £100 per annum.

WEST NORFOLK AND KING'S LYNN HOSPITAL.—(1) Senior House-Surgeon. (2) Junior House-Surgeon. Salary £150 and £100 per annum respectively.

WILLESDEN URBAN DISTRICT COUNCIL.—Resident Medical Officer at the Willesden Municipal Hospital. Salary £250 per annum.

WOLVERHAMPTON AND MIDLAND COUNTIES EYE INFIRMARY.—House-Surgeon. Salary £150 per annum.

WOOLWICH AND DISTRICT WAR MEMORIAL HOSPITAL, S.E.18.—House-Surgeon. Honorarium £100 per annum.

YORK: COUNTY HOSPITAL.—House-Physician. Salary £150 per annum.

CERTIFYING FACTORY SURGEONS.—The following appointments are vacant: Llanybyther (Carmarthenshire); Paisley (Renfrewshire). Applications to the Chief Inspector of Factories, Home Office, Whitehall, S.W.1.

This list of vacancies is compiled from our advertisement columns, where full particulars will be found. To ensure notice in this column advertisements must be received not later than the first post on Tuesday morning.

POST-GRADUATE COURSES AND LECTURES.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—*Queen's Hospital for Children*, Hackney Road, E.2: Special Course, all day. Fee £2 12s. 6d. for two weeks. Syllabus and ticket of admission from the Fellowship of Medicine, 1, Wimpole Street, W.1.

CENTRAL LONDON THROAT, NOSE AND EAR HOSPITAL, Gray's Inn Road, W.C.1.—Fri., 4 p.m., Acute Mastoiditis.

LIVERPOOL UNIVERSITY CLINICAL SCHOOL ANTE-NATAL CLINICS.—Royal Infirmary: Mon. and Thurs., 10.30 a.m. Maternity Hospital: Mon., Tues., Wed., Thurs., and Fri., 11.30 a.m.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcement of Births, Marriages, and Deaths is 9s., which sum should be forwarded with the notice not later than the first post on Tuesday morning, in order to ensure insertion in the current issue.

MARRIAGES.

ANDERSON—HYTCH.—At St. George's Church, Bloomsbury, on June 21st, 1930, by the Rev. W. C. Roberts, M.A., Rupert George Anderson, M.B., Ch.B.Ed., D.P.H.Lond., only son of the late D. L. Anderson, C.A., F.F.A., Glasgow, and of Mrs. Anderson of London, to Dorothy Preston Hytch, M.R.C.S.Eng., L.R.C.P.Lond., only daughter of Mr. and Mrs. E. Preston Hytch of Normandy, Surrey.

GEDYE—LOCKE.—On August 20th, at St. Paul's Church, Clifton, Bristol, Francis Ronald Gedye, M.B., Ch.B., son of the late Rev. E. F. Gedye, to Doris Kathleen Locke, daughter of Mr. and Mrs. T. W. Locke of Redland, Bristol.

MACKINTOSH—HAWORTH.—On August 26th, 1930, at Christ Church, Didsbury, by the Rev. E. N. Giles, assisted by the Rev. E. R. Hayes, Vicar of Melling Church, James Mackintosh, M.C., M.R.C.V.S., of Embo, Sutherland, to Doris Adeline Haworth, M.B., Ch.B., D.P.H., widow of the late Dr. Albert Haworth, M.Sc., M.B., Ch.B.

NATURALLY RICH

IN VITAMIN "D"

A "RESURRECTION"

.....

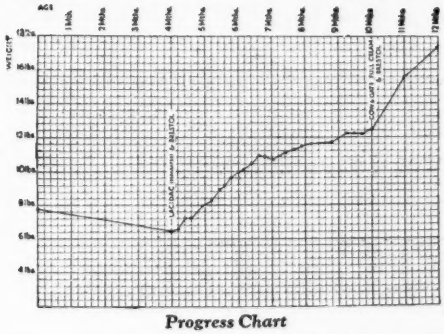
.....GUILDFORD
30/6/30

"Baby Hook, came under my care shortly after birth suffering with marasmus following whooping cough. Broncho-pneumonia developed and was with great difficulty cleared up, leaving the child in a very low condition. Feeding proved a difficult problem, several things were tried without beneficial results. The results with Cow & Gate were truly wonderful, indeed it is a case of 'a resurrection.'"

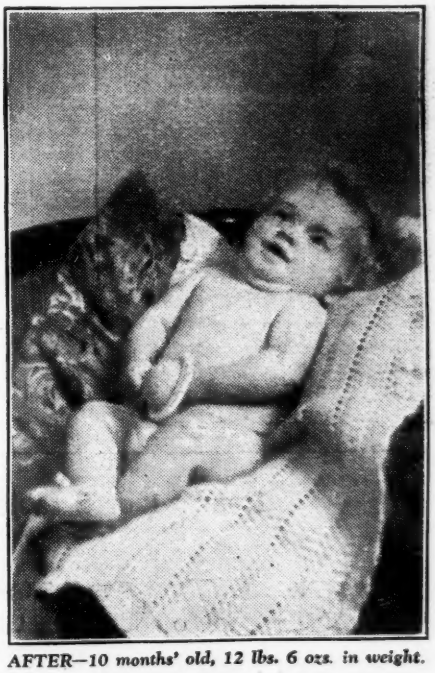
(Signed).....M.B.Ch.B.

Lacidac (separated) and Brestol, the Cow & Gate Humanised Cream, were used in the early days of treatment. Cow & Gate Full Cream and Brestol being used subsequently.

BEFORE—4 months' old, 6 lbs. 9 ozs. in weight.



Progress Chart



AFTER—10 months' old, 12 lbs. 6 ozs. in weight.

June 1930. Baby Hook has now won a prize in a Baby Competition!

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OLD AGE

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Increases muscle tonicity
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Effects marked subjective improvement

"Old age being caused by degeneration of the endocrine glands, especially the thyroid and sexual glands, all that is necessary to secure rejuvenation is to improve the condition of these glands. The best and easiest way to do this is to administer by the mouth extracts of these glands after their extirpation from healthy animals. . . .

"The persons treated looked considerably younger after it, to the extent of ten or fifteen years, and sometimes even more. The wrinkles in the face already began to disappear four or five weeks after the treatment, and, at the same time, previously corpulent persons, losing their excess of fat, were made to look slender, thus imparting a youthful impression."

(Lorand, "Life Shortening Habits and Rejuvenation," 1922.)

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